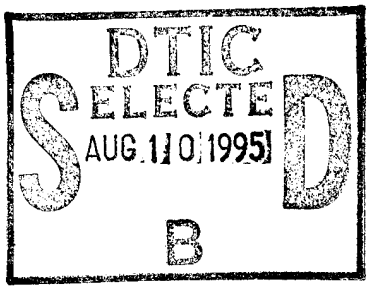
Research Product 95-02

Review of Division Structure Initiatives



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Fort Leavenworth Research Unit
Manpower and Personnel Research Division

U.S. Army Research Institute for the Behavioral and Social Sciences

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of the Deputy Chief of Staff for Personnel

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Director

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13. ABSTRACT *(Maximum 200 words)*

In anticipation of more demanding challenges even as it also experiences declining resources, the Army must reshape its combat organizations to be more versatile. A likely question for this redesign effort is "How have divisions evolved to their current status?" The project reported here collected and evaluated 208 documents to help answer that question.

The focus was set on post-Vietnam initiatives in general and the following five initiatives in particular: Triple Capabilities (TRICAP) study; Division Restructuring/Study/Evaluation (DRS/DRE); Army 86 (Heavy and Infantry Divisions and Separate Brigades); High Technology Light division (HTLD); and Army of Excellence (AOE) (Light and Heavy Divisions).

This report is intended to be a source of information on previous division structure initiatives and an overview of lessons learned from those initiatives. It contains a chronology of division design and structure initiatives, as well as an overview of each initiative and a summary of the major conceptual and organizational features pertinent to each initiative. The main body of the report concludes with a

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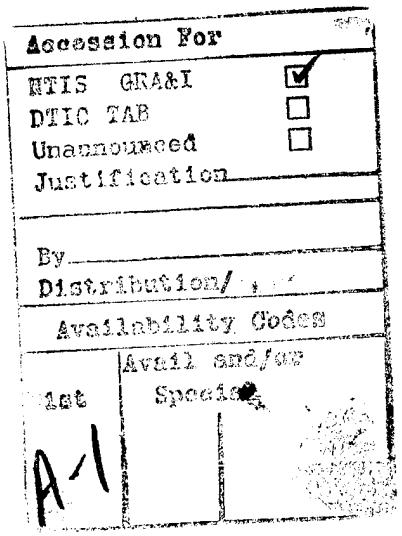
summary of overall trends, recommendations, and persistent issues. The appendices to the report contain abstracts of pertinent documents the authors identified, reviewed, and copied that relate to each of the initiatives.



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Review of Division Structure Initiatives

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FOREWORD

The U.S. Army is in a period of transition unmatched by any other period in history. Military history records many examples of "build-up to meet threat/build-down when the threat no longer exists." But no where is there any record of a transition period that had to deal with a geo-political situation in which the United States was the single dominant military force in the world. Furthermore, this force must be prepared to cope with requirements that span the entire spectrum of possible operations, from high- through low-intensity conflict to operations other than war.

While specific aspects of this transition vary depending on the source and date, projections share a common view of future trends: Declining resources in the face of more demanding challenges. As part of the response to the challenge, the Chief of Staff, Army (CSA) has directed study into reshaping the Army's combat organizations to be more versatile. A likely question for this redesign is "How have divisions evolved to their current status?" The project reported here is a response to a request from senior Army leadership, through the Deputy Chief of Staff for Personnel (DCSPER), to collect and evaluate documents which help answer that question.

This report summarizes the approach and the results obtained from the project. It is intended to be a source of information on previous division structure initiatives and an overview of lessons learned from those initiatives that are applicable to future design efforts. The lessons learned address study methodology, design trends, and persistent issues.

EDGAR M. JOHNSON
Director

REVIEW OF DIVISION STRUCTURE INITIATIVES

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REVIEW OF DIVISION STRUCTURE INITIATIVES

Introduction

The U.S. Army faces unprecedented changes as the Twenty-First Century approaches. While specific aspects of this change vary depending on the source and date, projections share a common view of future trends: Declining resources in the face of more demanding challenges. As part of the response to the challenge, the Chief of Staff, Army (CSA) has directed study into reshaping the Army's combat organizations to be more versatile (U.S. Army, June 1993). A likely question for this redesign is "How have divisions evolved to their current status?" The project reported here is a response to a request from senior Army leadership, through the Deputy Chief of Staff for Personnel (DCSPER), to collect and evaluate documents which help answer that question.

More specifically, this report is intended to be a source of information on previous division structure initiatives and an overview of lessons learned from those initiatives. It summarizes the approach and the results obtained from the project. In terms of results, the report contains a chronology of division design and structure initiatives, as well as an overview of each initiative and a summary of the major conceptual and organizational features pertinent to each initiative. The main body of the report concludes with a summary of overall trends, recommendations, and persistent issues. The eight appendices include some of the same information that is contained in the report but in a format suitable for briefing senior Army leaders. Appendices C through H also contain abstracts of pertinent documents the authors identified, reviewed, and copied that relate to each of the initiatives.

Approach

The scope of the initiatives to be considered was determined through interviews with experts on division design. The principal expert was Mr. Robert L. Keller, Director of the Force Design Directorate (FDD) of the Combined Arms Center at Fort Leavenworth, Kansas. Based largely on his recommendations, the focus was set on post-Vietnam initiatives in general and the following four initiatives in particular:

- Division Restructuring Study/Evaluation (DRS/DRE)
- Army 86: Division 86 (Heavy), Infantry Division (Motorized), and Separate (Fixed) Brigade
- High Technology Light Division (HTLD)

- Army of Excellence (AOE): Light Infantry Division (LID) and Heavy Division

As documents were collected, the pertinence of a fifth initiative, the Triple Capabilities (TRICAP) study, became apparent and it was added to the list.

During the planning phase of the project, one of the authors -- General (Retired) Edwin Burba -- outlined a set of insights on the characteristics that define Army organizations. These characteristics were used as a framework in selecting documents for inclusion. These defining characteristics, along with an example of applying the characteristics to current divisions, are included as Appendix A.

The initial set documents reviewed were identified through searches of the Defense Technical Information Center (DTIC). As it became clear that the DTIC searches alone would not give suitably comprehensive information on the initiatives, project staff identified four sites that were subsequently visited to acquire additional information:

- The Force Design Directorate (FDD). Mr. Keller has developed a detailed reference section that was especially valuable for documenting the AOE and Army 86 initiatives as well as providing information on concepts for the other initiatives. The reference section is an excellent source for information contained in briefings and memoranda of results of the briefings, including the Force Design Up-dates (FDU) to CSA.

- Office of the TRADOC Historian. Mr. John Romjue has compiled a very detailed and well organized archive related to the DRS/DRE and Army 86 initiatives. The references contained in this archive form the basis of his excellent histories on the evolution of the Mobile Defense and AirLand Battle doctrines and the procedures for Army 86.

- Army Development and Employment Agency (ADEA). LTC Fred Reynolds provided a list of publications related to the HTLD. Most of those publications were available through DTIC and LTC Reynolds provided copies of documents that were not in DTIC. Mr. Joseph Huddleston also provided a draft copy of his history of the HTLD.

- Test and Experimentation Command (TEXCOM) Technical Library. Mrs. Lydia Rives, the technical librarian, coordinated access to documents related to the TRICAP and DRS/DRE initiatives. Most of the TRICAP documents are classified SECRET.

Results

As shown in Table 1, 208 documents were reviewed.[1] Abstracts of the documents are enclosed in Appendices C through H of this report.

Table 1
Documents Collected

	Document Site					
Initiative	FDD	TRADOC	ADEA	TEXCOM	Other	Total
TRICAP				16		16
DRS/DRE	5	7		6	3	21
Army 86	14	48			3	65
HTLD	13	6	13		3	35
AOE	55	3			2	60
Future	6	3			2	11
Total	93	67	13	22	13	208

As documents were reviewed, it became apparent that there was a need for an overview to set the context for all the documents and for each initiative. It was also clear that the results of the review could be summarized as a set of design trends which, in turn, could be used as a basis for formulating recommendations for future force design efforts. GEN (R) Burba recommended that the initiatives be summarized in a format that would be suitable for a briefing to senior Army leadership, and that the summaries also include a chronology of the initiatives and overall future implications of the initiatives.

[1] A copy of each document (except for the classified TRICAP documents) has been acquired by the Army Research Institute and may be obtained by contacting Dr. Richard E. Christ by mail at the ARI Research Unit -- Leavenworth, P.O. Box 3407, Fort Leavenworth, KS 66027-0347 or by phone at commercial 913-684-4933 (DSN: 552-4933).

The resulting summaries constitute the succeeding seven sections of these results. The next section contains a chronology of design initiatives and types of division structures in the 20th Century. The next five sections summarize, respectively, each of the major division structure initiatives identified for this report. For each initiative the summary includes an overview, and a description of conceptual and organizational features. The final section summarizes overall trends and recommendations that can serve as lessons learned for future design efforts. The overall trends and recommendations address study methodology, design trends, and persistent issues.

Chronology of Division Structure Initiatives

Spanish American War To Vietnam[2]

- 1898 (Spanish American War) -- Triangular Division
  - 3 brigades of 3 regiments of 3 battalions of 4 companies

- 1918 Square Division of WWI Provisional Design -- 28,000 Personnel
  - 2 brigades of 2 regiments of 3 battalions and 1 machinegun company

- 1941 Triangular Infantry Division -- 15,000 Personnel, George Marshall
  - 68 AT guns and 48 howitzers
  - 3 regiments of 3 battalions of 3 companies and 1 heavy weapon company and regimental artillery
  - Eliminated brigade echelon

- 1940-1942 Armored Division -- Tailored Organization
  - 1942: 2 combat commands for: 2 regiments of 3 tank battalions each, armored infantry regiment of 3 battalions, 3 battalions of 105-mm SP howitzers
  - 1943: Eliminated regimental echelon and added third combat command

- 1954 Atomic Field Army (AFTA-1) -- 13,000 Personnel, Matthew Ridgeway
  - Adjust to fiscal, technological, and domestic political realities
  - Armored division = 3 combat commands (3 medium tank, 3 heavy tank, and 3 armored infantry battalions)
  - Infantry division = 3 combat commands (7 armored infantry and 1 tank battalion) -- eliminated infantry regiment
  - Codified DIVARTY and DISCOM

- 1955 Pentomic Division -- 8,600 Personnel, Maxwell Taylor
  - 5 self-sufficient combat groups of 4 companies, battery, and CSS Co.
  - Attempt to reverse negative budget trends

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[2]Based on Hawkins (1993). *United States Army Force Structure and Force Design Initiatives, 1939-1989.*

- 1956 Pentomic Division (Interim Pentomic) -- 14,000 Personnel
  - ROTAD (Abn): 5 battle groups, DIVARTY, and support group
    Battle group = 5 companies, mortar battery, and service company
  - ROCID (Inf): Same as ROTAD plus 1 armored cavalry squadron
  - ROCAD (Arm): No change from WWII, combat command structure 4 tank + 4 armored infantry, and cavalry squadron
  - Inf & Abn: No staying power, eliminated battalion, artillery weak, company too large, staffs too small, no LTC command slots, few MAJ staff positions, lacked organizational flexibility

- 1959 MOMAR I -- 13,000 Personnel, Bruce Clark
  - Eliminated corps -- Replaced by Field Army, building block
  - Heavy division focus -- Strategic deployability problem
  - 5 self-sustaining combat commands

- 1961-1964 ROAD (Eddleman, Kennedy, and Flexible Response)
  - 3 brigades with common division base replaced combat commands
  - Self-sufficient battalions and tailored brigades
  - Armored division - 6 tank and 5 mech battalions
  - Mechanized division - 7 mech and 3 tank battalions
  - Infantry division - 8 infantry and 2 tank battalions

- 1963 Air Assault Division -- 15,000 Personnel, Robert McNamara
  - Howze Board and 11th Air Assault Division methodology
  - 3 brigades: 9 battalions, DIVARTY, DISCOM, and aviation brigade
  - Aviation brigade = 2 light battalions (HUEY), 1 medium battalion (Chinook), and GS company

Post Vietnam[3]

- 1971-1974 TRICAP
  - 1 armor brigade, 1 air mobile brigade, and 1 air cavalry brigade
  - Aligned WW II doctrine with new technology
  - Technological breakthroughs -- ADA, AT, artillery, C3I, and mobility
  - Decision -- retain armored division, initiate separate air cavalry brigade

- 1975-1979 Division Restructuring Study (DRS), William DePuy
  - 1973 Mid-East War -- weapons and tactics genesis
  - Battalion key integrator of tanks, infantry, TOW, ADA, and aviation
  - Tank platoon of 3 tanks and infantry squad of 9 men (from 11)
  - Brigade has DS artillery from 3x6 to 4x8
  - Brigade and battalion scouts
  - Terminated by Starry -- operational vs. tactical level war

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[3]Based on Hawkins (op. cit.) and Romjue (1982), *A History of Army 86, Volume I and Volume II.*

- 1980-1984 Army 86:
  - Division 86 - Heavy (centerpiece) -- 19,000 Personnel, Donn Starry
    - -- 3 maneuver brigades and air cavalry brigade
    - -- Tank/Inf battalion = 4 companies of 4 vehicles, inf battalion included E Co
    - -- 6 + 4 armor division, 5 + 5 mech division
    - -- Artillery -- 3 155 battalion (3x8) + 8" battalion (16 8" + 9 MLRS)
    - -- Division implemented
  - Separate (Fixed) Brigade
    - -- Organic DS (MP, artillery, NBC, engineer, AD, MI, signal)
    - -- Combined arms battalions
    - -- Span of control problem
    - -- Not implemented
  - Infantry Division (Motorized) 86
    - -- Dual NATO/CONOPS capability
    - -- Three rejected designs (all included motorized infantry and mobile protected gun battalion)
  - Corps 86
    - -- Concurrent operations against 1st and 2nd echelon forces
    - -- 85 K on D-Day, 132 K on D+180
  - EAC 86
    - -- Centralized planning by Theater Army HQ
    - -- Decentralized execution by area and functional organizations
    - -- 185 K on D-Day, 421 K on D+180

- 1980-1984 High Technology Light Division
  - Test bed with 9th Infantry Division
  - NATO/CONOPS/Southwest Asia capability
  - Air Attack Cavalry Bde
  - HTLD: 5 Light Motorized Bns, 2 Light Attack Bns, 2 Assault Gun Bns
  - Converted to Motorized Division: 5 Combat Arms Bns (Hvy), 2 Combat Bns (Lt), and 2 Light Attack Bns

- 1983-1984 Army of Excellence, John Wickham
  - Light Division -- 10 K personnel, 500 sorties
    - -- Regional crisis response and strategic mobility (raison d' etre)
    - -- Structured for LIC and Operations Other Than War with utility for mid/high intensity
    - -- Capped end-strength consistent with potential for technology break throughs
  - Heavy Division -- Division 86 intact but functions and redundancies reduced
  - Corps strengthened: Artillery, engineers, LRSU, chemical, and aviation

Triple Capabilities (TRICAP) Initiative

Overview

- Rationale: Align doctrine and organization with technological development, especially develop role for Army aviation in mid-intensity conflict

- Organizational Structures
  - Armor brigade
  - Air Mobile Brigade
  - Air Cavalry Combat Brigade (ACCB)

- Study Method
  - Map exercise simulations (jiffy)
  - Senior officer questionnaires
  - Field tests (limited) with 1CAV
  - Appears less rigorous than DRS, which was found lacking in conceptual rigor

Conceptual Features

- Extend airmobility experience from Vietnam to mid-intensity environment in Europe and Middle East

- Increase combat power through technological advances

- Design division to encompass triple capability:
  - Armor brigade (fire power, mobility, shock action)
  - Air mobile brigade (fixing force with tactical/operational mobility)
  - ACCB (organic aerial firepower with tactical/operational mobility)

- Impose new technology on current doctrine

Organizational Features

- Iteration 1 (Conceptual)
  - 1 armored brigade, 1 airmobile infantry brigade, and 1 air cavalry combat brigade (ACCB)
  - 13.3K personnel

- Iteration 2 (Alternative)
  - 2 armored brigades and 1 ACCB capable of separate operations
  - 15.2K personnel
  - Separate ACCB, 5.3K personnel

- Iteration 3 (Reconstituted)
  - Alternative with refinements: 4 armor + 2 mech battalions and improved ADA
  - 16K personnel

Wargame Results

- Conceptual: 1 armored brigade, 1 airmobile infantry brigade, and 1 air cavalry combat brigade (ACCB)

  - More lethal than armored division, but was attrited more
  - Increased flexibility and reaction capability strained logistic systems
  - Lacked ground fixing capability

- Alternative (Europe) and Reconstituted (Middle East): 2 armored brigades and 1 ACCB capable of separate operations

  - TRICAP quicker reaction, higher attrition of enemy, but heavier losses than armored division
  - Alternative closer to armored division than was conceptual option
  - In comparison with ACR, ACCB reacted faster and attrited enemy more; but suffered more losses

Division Restructuring Study/Evaluation (DRS/DRE) Initiative

Overview[4]

- Rationale: Harness combat power of 70's weaponry consistent with a new doctrinal approach (Active Defense)

- Organizational Structure: Heavy division

- Study Methodology
  - Small group in TRADOC under direct control of commander
  - Limited input from Service Schools and integrating centers
  - Conducted evaluation (DRE) with 1st Cavalry Division: Rigor of execution of evaluation criticized

- Analytical Underpinning
  - Active Defense doctrine
  - Greater dispersion required greater mobility
  - Greater mobility and increased firepower (demonstrated in Arab-Israeli War) required improved command and control

[4]Based on Hawkins (op. cit.) and Romjue (op. cit.).

Conceptual Features[5]

- Smaller, more battalions to improve management of increased firepower
- Increased command and control in maneuver units
- More officer leadership per major weapon system
- Battalion lowest level for combining arms
- Increased artillery and new artillery missions to support new technologies
- System oriented logistics and forward maintenance

Organizational Features

- 5-battalion brigade
- 3-tank platoon, 36-tank battalion
- 104-man mech infantry company, 9-man rifle squad
- Separate TOW companies in tank and mech battalions
- 8-gun battery, 4-battery battalion
- Aviation battalion, attack helicopter company, air cavalry troop
- DIVADA, consolidated Stinger, gun battalion, missile battalion
- Division engineers reoriented forward
- CABL--mess, personnel, maintenance, supply
- Division ammunition transfer capability
- Corps medical evacuation

[5]Conceptual and Organizational Features based on Glover, R. F. et al. (1978), *Division Restructuring Evaluation*.

Army 86 Initiative[6]

Overview

- Rationale: Reshape operations and organizations to expedite 1980's weapons systems

- Organizational Structures
  - Heavy Division (Centerpiece)
  - Infantry Division (Motorized) -- (Stillborn)
  - Heavy Corps
  - Echelons Above Corps
  - Airborne and Air Assault Divisions -- (Stillborn)
  - Separate (Fixed) Brigade -- (Stillborn)

- Study Methodology
  - Deliberative, participatory approach encompassing entire TRADOC community
  - Monitored in part through General Officer Workshops (GOWs)
  - Formed task forces from schools and integrating centers
  - Organized task forces around battlefield functions:
    - -- Target Servicing
    - -- ADA
    - -- Suppression & Counterfire
    - -- Interdiction
    - -- Command, Control, Communications, & EW
    - -- Mobility
    - -- Surveillance and Fusion
    - -- Log Support
    - -- Reconstitution
  - Doctrinal concepts clearly preceded organizational designs
  - Analytical underpinning derived from AirLand Battle doctrine: Battlefield Development Plan
    - -- Calculus of the Central Battle
    - -- Where all aspects of fire power and maneuver coincide
    - -- Operational as well as tactical level of war

Heavy Division - Conceptual Features

- Maximum fire power forward

- Improved command and control

- Increased fire support and air defense

- Improved combining of arms

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[6]Summaries for Army 86 are based on Romjue (op. cit).

- Increased leader-to-led ratio
- Smaller, less complex combat companies and platoons
- Unencumbered maintenance and administration/logistics

Heavy Division - Organizational Features

- Four line companies (vice three) in maneuver battalions
- New Anti-Tank Missile Company in Mechanized Infantry Battalion
- New, robust Air Cavalry Attack Brigade
- Nine heavier howitzer batteries of 155-mm SP Artillery
- Combined 8-inch Howitzer/MLRS Battalion
- Target Acquisition Battalions (vice batteries)
- Increased intelligence assets: quick-fix, SOTAS, and surveillance radars
- Increased engineer support at corps level
- Air defense guns and missiles increased and centralized
- Composite Brigade Support Battalion

Infantry Division (Motorized) - Conceptual Features

- Dual NATO and contingency operations capability
- Integrated new technology
- Strong anti-armor
- High survivability
- High tactical mobility
- High versatility
- Strategic deployability

Infantry Division (Motorized) - Organizational Features -- (Not Implemented)

- Motorized Infantry Battalions
- Mobile Protected Gun Battalions

Corps - Conceptual Features

- Concurrent operations against first and second echelon forces
- Protection of rear areas
- Sustainment and reconstitution of combat power
- Integration of air-land battles
- (Administrative) Included Separate Brigade studies

Corps - Organizational Features

- AC/RC integration
- 85K personnel D Day to 132K on D+180
- Dedicated and area support to divisions (CSG and ASG)

Echelons above Cops - Conceptual Features

- Integrated battlefield
- Joint and combined operations
- Six-month build up
- AC/RC integration

Echelons Above Corps - Organizational Features

- Centralized planning and execution by Theater Army HQ
- Decentralized execution by area and functional organizations
- Flexibility to increase or decrease with Theater mission
- 185,000 personnel D Day to 421,000 on D+180

High Technology Light Division (HTLD) Initiative

Overview

- Rationale: Exploit emerging technologies to develop a division that could perform heavy division missions (NATO support) while maintaining strategic mobility (Southwest Asia/CONOPS)

- Organizational Structures
  - Light Division
    - -- 5 Light Motorized Bns (consolidated original Strike Bn and Motorized Inf Bn)
    - -- 2 Light Attack Bns
    - -- 2 Assault Gun Bns
  - Reorganized as Motorized Division
    - -- 5 Combined Arms Bns (Heavy)
    - -- 2 Combined Arms Bns (Light)
    - -- 2 Light Attack Bns (modified dune buggies)

- Study Methodology
  - High Technology Test Bed (HTTB) -- later Army Development and Employment Agency (ADEA) -- was formed as test group focussed on initiatives to transition 9ID to a high technology division
  - Design evolved on ground
    - -- High involvement of 9ID personnel
    - -- 17 months between MOU and operational concept
  - Organizational flaws allowed lack of consensus among key organizations:
    - -- DA: Chief of Staff, Army was principal decision-maker on even routine issues
    - -- TRADOC: Approval authority for O&O concept and test plans
    - -- FORSCOM: Command/control (nominal and absentee)
    - -- DARCOM: Provision of materiel development support and testing
    - -- HTTB: Development and validation of O&O concepts
    - -- 9ID: Test division
  - Validation tests used equipment already in system or required abbreviated development cycles

Conceptual Features[7]

- Structure around weapons system

- Develop units with superior ground/air mobility

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[7]From U.S. Army (ca 1982).

- Employ light and lethal combat load
- Deploy using force packaging approach
- Build superior C^3I system
- Achieve survivability through: Tactics, mobility, terrain, night operations, weapons lethality
- Prepare for numerous, widely separated battles
- Capitalize on night/adverse weather operations
- Insure near term force is complementary with heavy force

Organizational Features

- Light Motorized Infantry Battalion
  - 3 motorized companies and anti-armor company
  - Equipment: Reconfigured HMMWV, TOW, MK 19, 120-mm mortar
- Light Attack Battalion
  - 3 light attack companies and CS company
  - Equipment: Reconfigured HMMWV, light attack vehicle (dune buggy), TOW, MK 19, 120-mm mortar, light helicopter
- Assault Gun Battalion
  - 3 assault gun companies
  - Equipment: Reconfigured HMMWV, assault gun, MK 19, 120-mm mortar
- Cavalry Brigade (Air Attack)
  - ATK helicopter battalion, cavalry squadron, air assault battalion
  - Equipment: AHIP, armed helicopter, light observation helicopter, lift helicopter, TOW
- Division Scout Company
  - 3 patrol platoons
  - Equipment: HMMWV and motorcycle
- Transition to Motorized design
  - 5 Combined Arms Bns (Heavy)
    - -- 2 assault gun (AG) companies, 1 light motorized infantry (LMI) company, and 1 combat support company (CSC)
    - --Uncertainty about assault gun (planned for M551, eventually reconfigured HMMWV)
  - 2 Combined Arms Bns (Light): 2 LMI, 1 AG, 1 CSC
  - 2 Light Attack Bns: 3 light attack companies, 1 CSC

Army of Excellence (AOE) Initiative

Overview[8]

- Rationale
  - Reduce "hollowness" by bringing personnel and materiel requirements within scope of Army resources
  - Enhance corps capability to influence the battle
  - Develop strategic mobility for immediate crisis response in regional conflicts

- Organizational Structures
  - Light Division
  - Heavy Division
  - Airborne and Air Assault Divisions

- Study Methodology
  - 10-week feasibility study
    - -- Not exceed programmed personnel end strength
    - -- Develop light division for rapid deployment
    - -- Recommend reductions in heavy division
    - -- Consider centralizing assets at EAD
    - -- Redesign corps and EAC structure
  - Formed study group from various schools and centers
  - Followed compressed and accelerated Concept Based Requirements System: Designs followed development of O&O concepts (usually 1-day response, no more than 2 days)
  - Designed light infantry division (LID) from ground up (departure from Army 86)
  - Based heavy division on Army 86--reduced redundancy and sustainability
  - Applied augmentation concept (corps plugs) for occasionally used assets
  - Validated LID in certification (more rigorous than DRE)

Army of Excellence (Light) - Conceptual Features[9]

- Commonality of equipment, supplies (including ammunition), and organizational structure

- Optimize designs for low to mid intensity but retain usefulness in NATO

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[8]Based on Romjue (1993), *The Army of Excellence: The Development of the 1980s Army.*

[9]From Hassel (1984), *Army of Excellence Final Report, Volume II: The Light Infantry Division.*

- Reduce number of noncombat soldiers
- Reduce non-tactical overhead
- Provide, as organic elements, personnel and equipment which will always be needed
- Pool occasionally needed equipment at higher echelons
- Eliminate unneeded links in chains of command, supply, and administration
- Minimize support requirements
- Identify "plugs" of augmenting units
- Maximize use of additional duties, dual-training, and multiple mission individuals and units
- Units need not be self-sustaining
- Support system must be compatible with foot mobility
- Increase leader to led ratio

Army of Excellence (Light) - Organizational Features

- Light Infantry Battalion (9)
  - 3 rifle companies: 3 platoons, AA section (Dragon)
  - Mortar platoon: 107 mm
  - AA platoon: TOW
  - Scout platoon: Foot mobile
  - Limited CSS
- Combat Aviation Brigade
  - 2 combat aviation companies: Blackhawk helicopter
  - Reconnaissance squadron: OH-58
  - Assault helicopter battalion: Cobra
- DIVARTY
  - 3 FA battalions: 105 mm (towed)
  - Battery: 3x6 (rather than AOE 3x8)
  - No GS artillery
- Engineers
  - SEE, ACE
  - 3 companies: Sapper

- ADA Battalion
  - Meager, no FAAR (ultimately)
  - 2 companies: Vulcan and Stingers

- CSS (started meager)
  - 1 medical battalion: 2 medical companies
  - Maintenance battalion: HQ/light maintenance company, main support company, and component replacement rather than component repair
  - Supply and transportation battalion: Motor transport company, 3 forward supply companies, modest number of 5-tons and substantial number of HMMWVs

Army of Excellence (Heavy) - Conceptual Features[10]

- Reduce inherent robustness and redundancy while maintaining division's capability to conduct AirLand Battle

- Determine feasibility of moving systems and functions (such as ADA, MI, 8" artillery, MLRS, target acquisition, and aviation) to corps

- Increase tooth-to-tail ratio

- Consider applicability of concepts developed for LID to heavy division

- Maintain 10 maneuver battalions in division design

- Equipment (except airframes) to be available for fielding by 1987

Army of Excellence (Heavy) - Organizational Features[11]

- Reduced size of infantry squad to 9 (from 10)

- Moved 8" howitzers to corps

- Reduced 155 howitzer crew to 9 (from 11)

- Moved Chaparral to corps

- Moved 1 of 2 attack helicopter battalions from air attack brigade to corps aviation

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[10]From Hassel & Dickman (1984), *Army of Excellence Final Report, Volume III, The Heavy Division.*

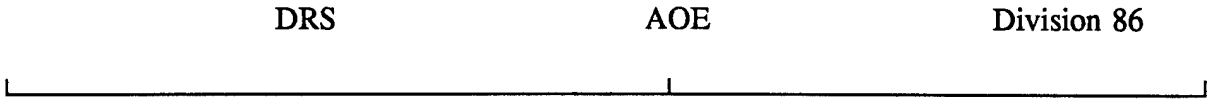
[11]From Romjue (1993) (op. cit.).

- Deleted brigade scout platoon
- Replaced FSB with forward area support concept (FSB later reintroduced)
- Deleted sound and flash platoon
- Eliminated AG company
- Adopted field feeding concept
- Consolidated band, strength accounting, replacement operations, and casualty reporting under division G1

Future Initiatives - Overall Trends and Recommendations

Study Methodology

- Designs that include participatory study group are most likely to be implemented.



  - Continue task force structure for participation of proponents.
  - Involve best conceptual thinkers (not necessarily best commanders).
  - Develop cells of conceptual thinkers to filter ideas (avoid patterns of compromise to maintain consensus).

- Fiscal constraints and personnel strength drive restructuring initiatives. (Hawkins, 1993)

  - Set high and low bands of capabilities to restructure planners rather than absolute limitations.
  - Allow flexibility to breech limits if justified.

- Length of study period affects quality and acceptance of design

  - Too short: Lacks analysis
  - Too long: Dissipates conceptual and imaginative energy
    Loses influence of key commanders
    Becomes bureaucratic

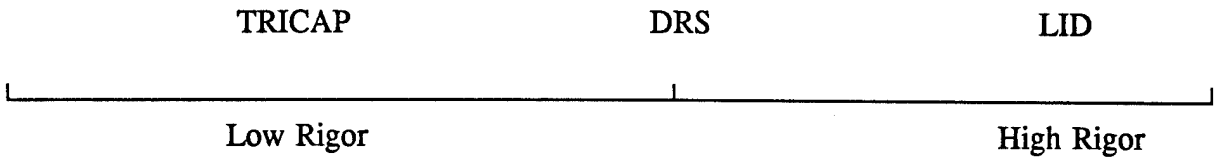
  - Recom: One year from concept to design decision; two years maximum to execute decision

- Up-front participation by TOE/TDA Army in restructuring formulations works best.

  - Allow to go to field before all details established (part of one-year development cycle).
  - Validate concepts in the field before full transition.

- Review progress with decision briefs (GOW builds consensus, but rarely facilitates decision).

- Rigorous testing is vital to assure quality and enhance acceptance.



  - Involve proponents to insure tactics and METT-T are appropriate.
  - Include analytical experts (e.g., Div 86 Analysis Group) to build rigor into planning of the validation.
  - Enforce rigor in execution: Limit number of variables, resource properly, train OPFOR, and train concept (experimental) unit.
  - Instrumentation of performance is essential.

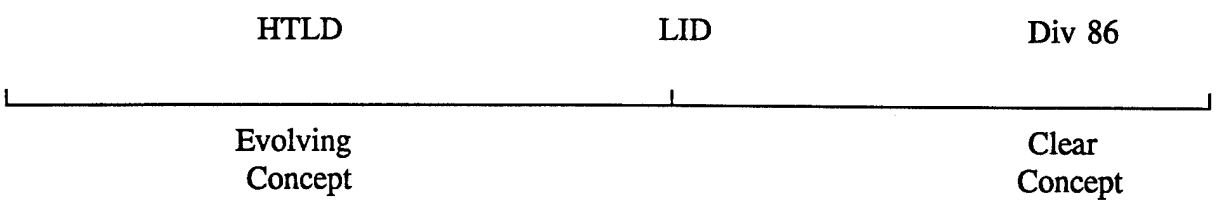
Design Trends

- Mixtures of standardized divisions work best. (Corollary: Specialty divisions rarely survive.) (Hawkins, 1993)

- Restructuring initiatives based on future weapons do not survive. (Hawkins, 1993)

- Restructuring based on programmed technological and METT-T changes is imperative.

- Organizational designs that follow conceptual thought work best.



- Personality drives restructuring efforts. (Hawkins, 1993)

  - Increases criticality of concept: Credible enough for implementation to continue beyond key driver's term.
  - Increases need for fairly quick decision.

- Comparative analysis for trade-offs among proponents tends to reflect decision maker's personal biases.

  - (Short term) Use current trade-off models to frame issues for more informed deliberations and decisions.
  - (Long term) Develop a high resolution combat developments simulation to perform comparative analyses.

Persistent Issues

- Placement of systems:

Pool	Habitual
Increase flexibility Reduce cost	Increase team work and freedom of action Assure timely availability

- Degree of self-sufficiency:

Decentralized Assets	Centralized Assets
Increase flexibility Increase aggressiveness Decrease deployability	Increase strategic/ operational mobility Increase efficiency

- Redundancy of logistics tail:

Dedicated Logistics	Area Logistics
Increase sustainment Decrease agility Increase personnel and dollar costs	Increase strategic/ operational mobility Decrease personnel and dollar cost

  - Consider host nation, contract, and Reserve support.

- Innovativeness of design:

Innovative	Continuity
Appear progressive to preserve funding Justify effort and resources devoted	Preserve capability during transition Capitalize on current expertise Less destabilizing

References

Glover, R. F. (COL), Colson, K. O. (COL), Greenway, J. R. (COL), Bason, D. W. (LTC), Clarke, E. F. (LTC), Colket, C. H (LTC), Mitchell, C. C. (LTC), & Shepard, P. G. (LTC) (September, 1978). *Division Restructuring Evaluation, Maneuver Battalion Phase, Volume I: Executive Summary*. Fort Leavenworth, KS: Force Design Directorate, Combined Arms Combat Development Activity.

Hassel, T. B. (CPT) (June 1984). *Army of Excellence Final Report, Volume II: The Light Infantry Division*. Fort Leavenworth, KS: Force Design Directorate, Combined Arms Combat Development Activity.

Hassel, T. B. (MAJ) & Dickman D. (CPT) (1984). *Army of Excellence Final Report, Volume III: The Heavy Division*. Fort Leavenworth, KS: Force Design Directorate, Combined Arms Combat Development Activity.

Hawkins, G. R. (1993). *United States Army Force Structure and Force Design Initiatives, 1939-1989* (Advance Copy). Washington, D.C.: United States Army Center of Military History.

Romjue, J. L. (June, 1982). *A History of Army 86, Volume I: Division 86: The Development of the Heavy Division, September 1978-October 1979.* Fort Monroe, VA: Historical Office TRADOC.

Romjue, J. L. (June, 1982). *A History of Army 86, Volume II: The Development of the Light Division, the Corps, and Echelons Above Corps, November 1979- December 1980.* Fort Monroe, VA: Historical Office TRADOC.

Romjue, J. L. (1993). *The Army of Excellence: The Development of the 1980's Army*. Fort Monroe, VA: Historical Office TRADOC.

U.S. Army (ca April 1982). *9th Infantry Division - Old Reliables* (Briefing). Fort Lewis, WA: Army Development and Employment Agency.

U.S. Army (January, 1993). *Force Design* (Message, HQDA, DACS-ZA). Washington, DC: Headquarters Department of the Army.

APPENDIX A

DEFINING CHARACTERISTICS OF ARMY ORGANIZATIONS

DEFINING CHARACTERISTICS OF ARMY ORGANIZATIONS

1. Defining Characteristics: At what level and type aggregation are structured what capabilities at what strength under what command and control arrangement to perform what missions under which conditions and with what trade-offs?

2. Levels of Aggregation:

Team	Battalion/Squadron
Section	Brigade/Regt./Group
Squad	Division
Platoon	Corps
Company/Battery/Troop	Army

3. Types of Aggregation:

Infantry	Signal
Armor	Intelligence
Cavalry/Scout	Supply
Aviation	Transportation
Artillery	Ordnance
Air Defense	Medical
Engineer	Administration/Finance
Military Police	Nuclear/Biological/Chemical

4. Capabilities

- Maneuver*

Foot	Mechanized/Armor
Motorized	Air Mobile

- Fire Power* (Direct and Indirect; Observed and Non-observed)

Anti-Personnel	Anti-Tank
Anti-Armor (thin skin)	Anti-Air

- Protection*

Detection Avoid.	Concealment/Deception/Surprise Light and Airborne Infantry
Hit Avoidance	Speed Agility, Suppression Air Assault Infantry
Penetration Avoid.	Armor, Natural/Fabricated cover Mechanized Infantry and Armor

- Mobility/Counter Mobility

- Command and control
- Intelligence
- Sustainment

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* Most Defining Characteristics

5. Strength: Number per unit of aggregation

Soldiers	Weapons	Equipment
Leaders	Vehicles	Supplies

6. Command and Control Arrangements

Organic	Direct support
Attached	General Support
Operational Control	General Support Reinforcing
Fwd Support (Dedicated)	Unit Distribution
Main Support (Area)	Supply Point Distribution

7. Missions:

Relief:	Peacekeeping and natural disaster; ecological, urban, civil disturbance, refugee, and counter-drug relief
Stealth:	Infiltration, ambush, raid, insurgency and counter-insurgency operations
Static:	Perimeter/battle positions/strong point defense; Lodgement, hold ground as anvil/pivot for maneuver
Cavalry:	Reconnaissance, cover, guard, screen, delay, pursue, exploit, deep attack, peace-making
Maneuver:	Movement to contact, attack, elastic defense in depth, delay, pursue, exploit

8. Conditions

Enemy -

Para military	Motorized Infantry
Light Infantry	Heavy Infantry/Armor

Terrain -

Restricted -- jungle, forests, mountains, urban
Open -- deserts, plains, delta, tundra
Mixed -- valley/ridge, and cross compartments

Time (Mobility)

Strategic Mobility (one theater to another quickly)
Operational mobility (one battle area to another within theater)
Tactical mobility (one position to another within battle area, with speed/agility based on terrain above)

9. Trade-offs -

Capability comparisons based on permutations and combinations of mission, enemy, terrain, and time conditions.

-- Example: Light infantry will execute better stealth missions in restricted terrain where their firepower, mobility, and protection are optimized and heavy infantry units capabilities are compromised. The reverse is true in open terrain.

10. Other Areas of Inquiry:

- Expansibility
- New era missions (peacekeeping/relief operations/regional operations)
- High technology application
- Force projection - strategic mobility, lodgement
- Peacetime affordability
- Training area/facility availability and affordability
- Reserve component application
- Coalition force application
- Joint force application
- Host nation support application
- "Contracting out" implications
- Intensity of war application - High, low, high/low
- Special Operations Force implications

DEFINING CHARACTERISTICS OF CURRENT TYPES OF ARMY DIVISION

Division	Raison d'Etre	Advantages	Disadvantages
Airborne	Strategic, Forced Entry	• Strategic Mobility • Forced Entry • Lodgement Operations	• Protection • Fire Power • Tactical mobility
Air Assault	Operational Level Reserve and Cavalry Operations	• Operational Mobility • Tactical Mobility • Lodgement Operations	• Strategic Mobility • Protection • Sustainment
Light Infantry	Restricted Terrain and Relief Operations	• Strategic Mobility • Tactical Mobility (Restricted Terrain) • Urban Fighting • Sustainment/Affordability	• Tactical Mobility (Open Terrain) • Protection (Open Terrain) • Fire Power (Open Terrain)
Mechanized Infantry/ Armor	Open Terrain Maneuver Operations	• Tactical Mobility • Protection • Fire Power	• Strategic Mobility • Operational Mobility • Sustainment

APPENDIX B

CHRONOLOGY OF DIVISION STRUCTURE INITIATIVES

DIVISION STRUCTURE CHRONOLOGY: SPANISH AMERICAN WAR TO VIETNAM[1]

- 1898 (Spanish American War) -- Triangular Division
  - 3 brigades of 3 regiments of 3 battalions of 4 companies

- 1918 Square Division of WWI Provisional Design -- 28,000 Personnel
  - 2 brigades of 2 regiments of 3 battalions and 1 machinegun company

- 1941 Triangular Infantry Division -- 15,000 Personnel, George Marshall
  - 68 AT guns and 48 howitzers
  - 3 regiments of 3 battalions of 3 companies and 1 heavy weapon company and regimental artillery
  - Eliminated brigade echelon

- 1940-1942 Armored Division -- Tailored Organization
  - 1942: 2 combat commands for: 2 regiments of 3 tank battalions each, armored infantry regiment of 3 battalions, 3 battalions of 105-mm SP howitzers
  - 1943: Eliminated regimental echelon and added third combat command

[1]Based on Hawkins (1993), *United States Army Force Structure and Force Design Initiatives, 1939-1989.*

- 1954 Atomic Field Army (AFTA-1) -- 13,000 Personnel, Matthew Ridgeway
  - Adjust to fiscal, technological, and domestic political realities
  - Armored division = 3 combat commands (3 medium tank, 3 heavy tank, and 3 armored infantry battalions)
  - Infantry division = 3 combat commands (7 armored infantry and 1 tank battalion)--eliminated infantry regiment
  - Codified DIVARTY and DISCOM

- 1955 Pentomic Division -- 8,600 Personnel, Maxwell Taylor
  - 5 self-sufficient combat groups of 4 companies, battery, and CSS Co.
  - Attempt to reverse negative budget trends

- 1956 Pentomic Division (Interim Pentomic) -- 14,000 Personnel
  - ROTAD (Abn): 5 battle groups, DIVARTY, and support group
    Battle group = 5 companies, mortar battery, and service company
  - ROCID (Inf): Same as ROTAD plus 1 armored cavalry squadron
  - ROCAD (Arm): No change from WWII, combat command structure for 4 tank + 4 armored infantry, and cavalry squadron

-Inf & Abn: No staying power, eliminated battalion, artillery weak company too large, staffs too small, no LTC command slots, few MAJ staff positions, lacked organizational flexibility

- 1959 MOMAR I -- 13,000 Personnel, Bruce Clark
  - Eliminated corps -- Replaced by Field Army, building block
  - Heavy division focus -- Strategic deployability problem
  - 5 self-sustaining combat commands

- 1961-1964 ROAD (Eddleman, Kennedy, and Flexible Response)
  - 3 brigades with common division base replaced combat commands
  - Self-sufficient battalions and tailored brigades
  - Armored division - 6 tank and 5 mech battalions
  - Mechanized division - 7 mech and 3 tank battalions
  - Infantry division - 8 infantry and 2 tank battalions

- 1963 Air Assault Division -- 15,000 Personnel, Robert McNamara
  - Howze Board and 11th Air Assault Division methodology
  - 3 brigades: 9 battalions, DIVARTY, DISCOM, and aviation brigade
  - Aviation brigade = 2 light battalions (HUEY), 1 medium battalion (Chinook), and GS company

DIVISION STRUCTURE CHRONOLOGY: POST VIETNAM[2]

- 1971-1974 TRICAP
  - 1 armor brigade, 1 air mobile brigade, and 1 air cavalry brigade
  - Aligned WW II doctrine with new technology
  - Technological breakthroughs -- ADA, AT, artillery, C3I, and mobility
  - Decision -- retain armored division, initiate separate air cavalry brigade

- 1975-1979 Division Restructuring Study (DRS) -- William DePuy
  - 1973 Mid-East War -- weapons and tactics genesis
  - Battalion key integrator of tanks, infantry, TOW, ADA, and aviation
  - Tank platoon of 3 tanks and infantry squad of 9 men (from 11)
  - Brigade has DS artillery from 3x6 to 4x8
  - Brigade and battalion scouts
  - Terminated by Starry -- operational vs. tactical level war

[2]Based on Hawkins (op. cit.) and Romjue (1982), *A History of Army 86, Volume I and Volume II.*

- 1980-1984 Army 86:
  - Division 86 - Heavy (centerpiece) -- 19,000 Personnel, Donn Starry
    -- 3 maneuver brigades and air cavalry brigade
    -- Tank/Inf battalion = 4 companies of 4 vehicles, inf battalion included E Co
    -- 6 + 4 armor division, 5 + 5 mech division
    -- Artillery -- 3 155 battalion (3x8) + 8" battalion (16 8" + 9 MLRS)
    -- Division implemented

  - Fixed brigade
    -- Organic DS (MP, artillery, NBC, engineer, AD, MI, signal)
    -- Combined arms battalions
    -- Span of control problem
    -- Not implemented

  - Light Infantry Division 86
    -- Dual NATO/CONOPS capability
    -- Three rejected designs (all included motorized infantry and mobile protected gun battalion)

- Army 86: Corps 86
  - -- Concurrent operations against 1st and 2nd echelon forces
  - -- 85 K on D-Day, 132 K on D+180

- Army 86: EAC 86
  - -- Centralized planning by Theater Army HQ
  - -- Decentralized execution by area and functional organizations
  - -- 185 K on D-Day, 421 K on D+180

• 1980-1984 High Technology Light Division
  - Test bed with 9th Infantry Division
  - NATO/CONOPS/Southwest Asia capability
  - Air Attack Cavalry Bde
  - 5 Light Motorized Bns, 2 Light Attack Bns, 2 Assault Gun Bns
  - Converted to Motorized Division: 5 Combat Arms Bns (Hvy), 2 Combat Bns (Lt), and 2 Light Attack Bns

- 1983-1984 Army of Excellence, John Wickham
  - Light Division -- 10 K personnel, 500 sorties
    - -- Regional crisis response and strategic mobility (raison d' etre)
    - -- Structured for LIC and Operations Other Than War with utility for mid / high intensity
    - -- Capped end-strength consistent with potential for technology break throughs
  - Heavy Division -- Division 86 intact but functions and redundancies reduced
  - Corps strengthened: Artillery, engineers, LRSU, chemical, and aviation

APPENDIX C

TRIPLE CAPABILITIES (TRICAP) INITIATIVE

TRICAP INITIATIVE: OVERVIEW

- Rationale: Align doctrine and organization with technological development, especially develop role for Army aviation in mid-intensity conflict

- Organizational Structures
  - Armor brigade
  - Air Mobile Brigade
  - Air Cavalry Combat Brigade (ACCB)

- Study Method
  - Map exercise simulations (jiffy)
  - Senior officer questionnaires
  - Field tests (limited) with 1CAV
  - Appears less rigorous than DRS, which was found lacking in conceptual rigor

TRICAP INITIATIVE: CONCEPTUAL FEATURES

- Extend airmobility experience from Vietnam to mid-intensity environment in Europe and Middle East

- Increase combat power through technological advances

- Design division to encompass triple capability:
  - Armor brigade (fire power, mobility, shock action)
  - Air mobile brigade (fixing force with tactical/operational mobility)
  - ACCB (organic aerial firepower with tactical/operational mobility)

- Impose new technology on current doctrine

TRICAP INITIATIVE: ORGANIZATIONAL FEATURES

- Iteration 1 (Conceptual)
  - 1 armored brigade, 1 airmobile infantry brigade, and 1 air cavalry combat brigade (ACCB)
  - 13.3K personnel

- Iteration 2 (Alternative)
  - 2 armored brigades and 1 ACCB capable of separate operations
  - 15.2K personnel
  - Separate ACCB, 5.3K personnel

- Iteration 3 (Reconstituted)
  - Alternative with refinements: 4 armor + 2 mech battalions and improved ADA
  - 16K personnel

TRICAP INITIATIVE: WARGAME RESULTS

- Conceptual: 1 armored brigade, 1 airmobile infantry brigade, and 1 air cavalry combat brigade (ACCB)

  - More lethal than armored division, but was attrited more
  - Increased flexibility and reaction capability strained logistic systems
  - Lacked ground fixing capability

- Alternative (Europe) and Reconstituted (Middle East): 2 armored brigades and 1 ACCB capable of separate operations

  - TRICAP quicker reaction, higher attrition of enemy, but heavier losses than armored division
  - Alternative closer to armored division than conceptual option was
  - In comparison with ACR, ACCB reacted faster and attrited enemy more; but suffered more losses

DOCUMENTS FOR TRICAP INITIATIVE

Introduction

Most of the documents related to TRICAP are classified and kept at the Test and Experimentation Command (TEXCOM) Technical Library. Because of the difficulty of gaining access to those documents, the abstracts in this appendix contain more detail than the others, primarily as they relate to results of the wargame studies. Of the classified documents, *Reconfiguration of the TRICAP Division* (December, 1972) is the most comprehensive. In addition to the overall assessment of TRICAP, the test agency conducted a series of field tests of components of the air cavalry combat brigade (ACCB). Documents are listed in chronological order.

Documents

- U.S. Army. Letter from Chief of Staff of the Army, Subject: Formation of the 1st Cavalry Division (TRICAP), December 29, 1970. (SECRET, located in TEXCOM Technical Library, Fort Hood, Texas)

Announces formation of experimental TRICAP Division to design and test armor/airmobile/air cavalry organization and tactics for mid-intensity warfare. Division -- at strength of 13,000 -- was dedicated in support of Project MASSTER.

- U.S. Army, Combat Developments Command. *Evaluation of TRICAP concepts and organizations, TRICO I, Phase I, Volume 1.* CDEC, December 1971. (SECRET, located in TEXCOM Technical Library, Fort Hood, Texas)

Describes 6 map exercise war games (jiffy) comparing the conceptual TRICAP with an armored division (2.6 K personnel fewer in TRICAP) in European defensive operations. Conceptual TRICAP included 1 armored brigade, 1 airmobile infantry brigade, and 1 air cavalry combat brigade. Divisions were comparable as corps covering force, counter-attack force, in dynamic defense, and in delay; TRICAP was weaker in mobile defense. TRICAP was able to reinforce or react to penetration more rapidly, but lacked ground staying capability to canalize and contain enemy forces. Document includes: description of forces; techniques utilized; play of maneuver by game (with prints of positions); comparative analysis for 17 parameters of tactical operations (e.g., aviation support, personnel and equipment losses, and communications-electronics support); comparative analysis of logistics operations; and insights and recommendations.

- U.S. Army, Combat Developments Command. *Evaluation of TRICAP concepts and organizations, TRICO I, Phase I, Volume 2.* CDEC, December 1971. (SECRET, located in TEXCOM Technical Library, Fort Hood, Texas)

Contains appendices for Volume 1 (European defense): Directive and study plan with essential elements of analysis; general scenario; detailed tactical results for each game; troop list for TRICAP as studied (13,326); and detailed comparative analyses for field artillery support, tactical air support, intelligence, electronic warfare support, communication-electronic support, and logistic support.

- U.S. Army, Combat Developments Command. *Evaluation of TRICAP concepts and organizations, TRICO I, Phase I, Volume 3.* CDEC, December 1971. (SECRET, located in TEXCOM Technical Library, Fort Hood, Texas)

Contains photographs of critical incidents for each game of the European defense study. Photos duplicate prints in Volume 1, but are much clearer.

- U.S. Army, MASSTER. Historical Data File Report: ACCB I Air Cavalry Attack Platoon Test Report, No 41, December 1971.

Summarizes test to examine tactics, techniques, and organizations for ACAP in mid-intensity warfare (Europe). Recommends continued testing with modifications to training program.

- U.S. Army, HQ III Corps and Fort Hood. Senior Officers' Questionnaire for ACCB II and TRICAP I, undated (ca. January 1972).

Structured survey for observers' opinions following observation of ACCB tests related to role of Army Aviation in a mid-intensity combat environment. Especially useful for description of ACCB concepts.

- U.S. Army, MASSTER. *Attack helicopter squadron (ACCB II) test report, MASSTER Test No 41, Executive Summary.* Fort Hood, TX: Modern Army Selected Systems Test Evaluation and Review, June 1972.

Summarizes field test comparing organizational and operational concepts of an attack helicopter squadron in a mid-intensity environment. The test covered three organizations: Air cav troop, AH troop, and AH troop with airmobile infantry platoon. Major conclusions were: both configurations of AH troop were more effective than air cav in massing fires and sustaining an attack; all units have tactical advantage over aggressor in detection and engagement of targets; and infantry should be organic.

♦ U.S. Army, Combat Developments Command. *Evaluation of TRICAP concepts and organizations, TRICO II, Phase VI, Volume 1.* CDEC, July 1972. (SECRET, located in TEXCOM Technical Library, Fort Hood, Texas)

Presents results of studies of ACCB in defensive and offensive operations in Europe ('73-'75). Focusses on comparative analyses with the armored cavalry regiment (tank/M551) on jiffy wargames. Unlike other studies, units were reconstituted after each critical incident. Document also includes side analyses on TRICAP with 3 separate ACCB and night operations. In comparative analyses, ACCB generally reacted faster and attrited enemy more; but suffered more losses. Specifically:

Corps covering force	ACCB gave ground faster, but attrited more.
Rear area security	ACCB reacted faster but lacked fixing forces.
Flank security/counter attack	ACCB reacted faster but gave ground faster.
Economy of force (def)	ACCB unable to execute defense missions independently (ACR could).
Recon in force	ACCB superior, but attrited more.
Exploitation/pursuit	ACCB superior.

In side analyses:

- 3 ACCB incapable of conducting missions assigned to other divisions without augmentation or reinforcement.

- Darkness seriously impaired separate ACCB's combat capability (ACR not seriously affected).

In addition to details of studies, document includes a detailed concept of employment of separate ACCB.

♦ U.S. Army, CACDA. *Evaluation of TRICAP concepts and organizations, TRICO II, Phase V, Volume 1.* CACDA, November 1972. (SECRET, located in TEXCOM Technical Library, Fort Hood, Texas)

Presents results of test of alternative structure for TRICAP and an armored division on defensive and offensive missions in a European scenario. Alternative TRICAP included 2 armored brigades and 1 ACCB. In mobile defense, TRICAP attrited enemy more but did not retain ground as well, received more losses, and took longer. In delay, TRICAP was capable of all delay formations, but gave ground faster. In penetration, TRICAP attrited enemy more, but took longer and was attrited more. Document includes: description of forces; techniques utilized; play of maneuver by game (with prints of positions); comparative analysis for 17 parameters of tactical operations (e.g., aviation support, personnel and equipment losses, and communications-electronics support); comparative analysis of logistics operations; and insights and recommendations.

- U.S. Army, Combat Developments Command. *Evaluation of TRICAP concepts and organizations, TRICO II, Phase V, Volume 2.* CDEC, November 1972. (SECRET, located in TEXCOM Technical Library, Fort Hood, Texas)

Contains appendices in support of Volume 1 (alternative TRICAP in European defense and offense). Includes: Scenarios; tactical results by game; troop list for TRICAP (Alternative) -- 15,214; and detailed comparative analyses for field artillery support, tactical air support, intelligence, electronic warfare support, communication-electronic support, and logistic support.

- U.S. Army, Combat Developments Command. *Evaluation of TRICAP concepts and organizations, TRICO II, Phase VI, Volume 2.* CDEC, November 1972. (SECRET, located in TEXCOM Technical Library, Fort Hood, Texas)

Contains detailed data in support of Phase VI, Volume 1 (ACCB in European defense and offense). Includes: study directive, with revisions; study plan, with revisions; scenarios; tactical results; troop list for ACCB (5,330); detailed results for artillery support, tactical air support, intelligence, and communication/electronics support; SIGINT/EW support concept for ACCB; side analyses on alternative division and night operations; and logistic support.

- U.S. Army, Combat Developments Command. *Reconfiguration of the TRICAP Division.* CDEC, December 1972. (SECRET, located in TEXCOM Technical Library, Fort Hood, Texas)

Sets forth reconfigured organizations for TRICAP: 2 armored brigades and 1 ACCB capable of independent operations; manpower constraint of 16K; 6 heavy maneuver battalions (4 tank, 2 mech); 3 airmobile infantry companies (to be augmented by a fourth); ADA battalion changed to 2 batteries of Vulcan (SP), 1 battery of Vulcan (T), 1 battery of Chaparral (SP), and a FAAR section; and an intelligence battalion as an augmentation. Presents a judgmental analysis of the reconfigured division compared with an armored division in European offensive and defensive operations:

TRICAP superior	Aerial antitank capability Reconnaissance/surveillance capability Battlefield mobility Reaction capability
Armored division superior	Ground combat capability Combat support capability CSS capability Sustainability
Divisions equal	Ground antitank capability Command and control Nuclear aspects

Appendices include a recommended summary of studies, test, and related sources.

- U.S. Army. Letter from Assistant Chief of Staff for Force Development, Subject: Attack Helicopter Squadron (ACCB II) Test Report, 9 January 1973.

Contains comments on report of MASSTER Test No 41. Generally concurs with conclusions with exception of recommendation for infantry to be organic.

- Fickett, R. K.(LTC), Ireland, L. R. (MAJ), and Taylor, R. A. Jr. (MAJ). *MASSTER Test No 151: Attack helicopter squadron test report, Executive Summary.* Fort Hood, TX: Modern Army Selected Systems Test Evaluation and Review, July 1973.

Summarizes field test of an attack helicopter squadron against an enemy tank and motorized threat in mid-intensity combat (Europe). Found squadron concept viable with reorganization (primarily deletion of ranger company).

- U.S. Army, CACDA. *Evaluation of TRICAP concepts and organizations, TRICO III, Phase VII, Volume 1.* CACDA, September 1973. (SECRET, located in TEXCOM Technical Library, Fort Hood, Texas)

Describes procedures and results for studies of TRICAP (Reconfigured) and independent operations of an ACCB task force. Studies were based on jiffy map exercise wargames in a Middle East mid-intensity scenario.

ACCB with armored brigade TF and ACR	Covering force	ACCB unable to delay forward as long, but higher relative effectiveness.
ACCB with armored brigade TF	Flank security	ACCB unable to force withdrawal as quickly, but inflicted greater damage with far less injury.
TRICAP (R) with armored division	Counter-attack	TRICAP (R) engaged more quickly, attrited more, and was attrited more. Armored division restored FEBA more quickly and created a counter-penetration [TRICAP (R) did not].
	Exploitation/ pursuit	Armored division ejected invading force more quickly with higher relative effectiveness [though TRICAP (R) was more lethal).

Document includes description of forces; techniques; play of maneuver; results of tactical operation; results of logistic operations; strategic deployment requirements for TRICAP (R), ACCB, and TRICAP (-); insights; and essential test requirements for MASSTER Test 164.

- U.S. Army, Combat Developments Command. *Evaluation of TRICAP concepts and organizations, TRICO III, Phase VII, Volume 2.* CDEC, September 1973. (SECRET, located in TEXCOM Technical Library, Fort Hood, Texas)

Contains detailed information in support of the evaluation of TRICAP (R) in the Middle East scenario. Appendices include: Revisions to study plan; scenario; tactical results by game; troop list [TRICAP (R)] = 15,920); detailed analyses related to fire support, tactical air support, intelligence (with a proposed Combat Intelligence Battalion), communication, and logistic support. One appendix also provides a concept of SIGINT/EW support given TRICAP's mobility.

APPENDIX D

DIVISION RESTRUCTURING STUDY/EVALUATION (DRS/DRE) INITIATIVE

DIVISION RESTRUCTURING STUDY/EVALUATION (DRS/DRE) INITIATIVE: OVERVIEW[3]

- Rationale: Harness combat power of 70's weaponry consistent with a new doctrinal approach (Active Defense)

- Organizational Structure: Heavy division

- Study Methodology
  - Small group in TRADOC under direct control of commander
  - Limited input from Service Schools and integrating centers
  - Conducted evaluation (DRE) with 1st Cavalry Division: Rigor of execution of evaluation criticized

- Analytical Underpinning
  - Active Defense doctrine
  - Greater dispersion required greater mobility
  - Greater mobility and increased firepower (demonstrated in Arab-Israeli War) required improved command and control

[3]Based on Hawkins (op. cit.) and Romjue (op. cit.).

DIVISION RESTRUCTURING STUDY/EVALUATION (DRS/DRE): CONCEPTUAL FEATURES[4]

- Smaller, more battalions to improve management of increased firepower
- Increased command and control in maneuver units
- More officer leadership per major weapon system
- Battalion lowest level for combining arms
- Increased artillery and new artillery missions to support new technologies
- System oriented logistics and forward maintenance

[4]Conceptual and Organizational Features based on Glover, R. F., et al. (1978), *Division Restructuring Evaluation*.

DIVISION RESTRUCTURING STUDY/EVALUATION (DRS/DRE): ORGANIZATIONAL FEATURES

- 5-battalion brigade, 36-tank battalion, 3-tank platoon
- 104-man mech infantry company, 9-man rifle squad
- Separate TOW companies in tank and mech battalions
- 8-gun battery, 4-battery battalion
- Aviation battalion, attack helicopter company, air cavalry troop
- DIVADA, consolidated Stinger, gun battalion, missile battalion
- Division engineers reoriented forward
- CABL--mess, personnel, maintenance, supply
- Division ammunition transfer capability
- Corps medical evacuation

DOCUMENTS FOR DIVISION RESTRUCTURING STUDY/EVALUATION (DRS/DRE) INITIATIVE

Introduction

The enclosed documents emphasize the doctrinal concepts related to DRS/DRE initiative, General DePuy's personal involvement, and the reported results of each phase.

- General DePuy's tactical perspective is described in two documents by historians Doughty (Aug 79) and Romjue (Jun 84).

- General DePuy's personal involvement is shown in several items of correspondence (May 75, Oct 75, Feb 76, and May 76). These items, plus enclosures in Romjue's history, give succinct summaries of General DePuy's intent.

- Each of the three phases was covered by a final report. The executive summaries are included among the documents. Two of these reports are especially recommended: The Phase I executive summary (Sep 78) and reservations by Corps Commander in the transmittal letter to the Phase III report (Aug 79).

Documents are in chronological order.

Documents

♦ U.S. Army, TRADOC. Letter from GEN DePuy to Deputy Chief of Staff for Operations and Plans (LTG Cowles), 15 May 1975.

Describes intentions for scope of effort: "visible, evolutionary and simple"; incorporate Antiarmor Capabilities Study; and include structure of the Air Assault and Airborne divisions to fight in Europe (though early explicit intention is to defend on basis of contingencies).

♦ U.S. Army, TRADOC. Letter from GEN DePuy to Chief of Staff Army (GEN Weyand), 7 Oct 1975.

Describes evolution of GEN DePuy's focus from overhead and support to one that includes weapons systems and tactics.

- U.S. Army, TRADOC. Letter from GEN DePuy to Assistant Deputy Chief of Staff (MG Meyer), 3 February 1976.

Describes two alternatives for DISCOM to be considered in Division Logistics Organizational Structure study. Both retain DISCOM HQ, but one eliminates existing functional battalions.

- U.S. Army, TRADOC. Letter from GEN DePuy to GEN Rogers, Subject: Division Restructuring, 26 May 1976.

Lays out initial rationale for DRS. Lists new weapons systems to be incorporated and explains concern that increased firepower will exceed company commanders' span of command and control.

- U.S. Army, CACDA (LTC Ross). Memorandum for Record, Subject: Summary of Division Restructuring Study Effort, 7 June 1976.

Summarizes briefings to GEN DePuy on 17 May 1976 regarding alternative organizations and on 2 June 1976 regarding alternative battalion organizations. Principal documents are briefing on pilot and MFR by COL Foss regarding 17 May briefing to GEN DePuy and subsequent guidance.

- U.S. Army, TRADOC. Memorandum For Record (LTC Pihl), 17 July 1976.

Describes presentation of the pilot study by the Division Restructuring Study Group to Chief of Staff Army (GEN Weyand). Notable for CSA comments on the need for Army to project an image of moving forward (even beyond 1980-85) and his desire to implement the design immediately in Europe.

- U.S. Army, TRADOC. Message from CDR, TRADOC to AIG 7444, Subject: Air Assault Division Restructuring, 18 February 1977.

Gives guidance for proponents to examine air assault division units: helicopters within current division total; strength not exceed 16K band; reduce strategic lift requirements; include ACCB for at least one alternative; assessment of force effectiveness to include a NATO and AA contingency situation.

- Foss, J. W. (COL), Pihl, D. S. (COL), Tuttle, W. G. T. (COL), Fitzgerald, T. E. (LTC), Diez, E. S. (LTC), Lucas J. C. (LTC), Degyansky, A. W. (MAJ), and Murphy, T. L. (MAJ). *Division restructuring study, Volume I, Executive summary.* Fort Monroe, VA: TRADOC, 1 March 1977.

Excellent overview of the concept, methodology, and Phase I findings for the DRS. Conclusions call for smaller and fewer maneuver battalions, increased artillery, separate TOW companies, consolidated aviation assets, a separate chemical company, integration of combined arms at battalion (rather than company), transferring medical battalion and bridge company to corps, additional communications and transport, and a separate AD command. Annex describes the concept and organization for each unit in the proposed division.

- U.S. Army, CATD. DF ATCAT-CAD-CSS from Dir, CATD To Dir, RDTEO, Subject: Interim Report of ARTEP-Based Observations, 27 April 1978.

Observations on training status of units scheduled to participate in DRS Phase II testing.

- U.S. Army. Letter ATSB-DAD from CDR, USAS to HQ TCATA, Subject: DRS Phase I Test Report, June 1978.

Expresses reservations related to conclusions of maneuver battalion test report. Includes scathing criticism of test procedures: leadership, state of training, lack of CSS play, shortages/overages of authorized personnel and equipment, and the role of brigade commanders and XOs.

- U.S. Army, CAC. Briefing for CSA, DRS Phase I Test Results, 29 June 78.

Slides and text of briefing to Chief of Staff, Army on the results of the division test and evaluation through the maneuver battalion phase and the concept for the brigade (+) phase. Excellent comparison of restructured units with H-series using field and gaming data (generally comparable). Memos describe issues raised by CSA and others. CSA issues concerned bi-functional staff (especially personnel officer), duties of company XO, pure companies vs. company teams, 4.2 mortars, and the need for the FIST team.

- U.S. Army, RDTEO. Memorandum for Record, Subject: Trip Report, undated (ca July 1978).

Notes related to CSA briefing. Especially useful for transcript of discussion following briefing. Notable lack of enthusiasm for short-term external evaluation.

- U.S. Army, ATCAT-R. Memorandum for Record, Subject: Modification of the Division Restructuring Study (DRS) Tank and Scout Platoons, 20 July 1978.

Includes letter from CDR, III Corps requesting authority to modify DRS brigade to include a four-tank per platoon configuration (rather than "definitely inferior" three-tank platoon) and "Fort Knox version" of scout platoon (seven M113 and 30 men).

- Glover, R. F. (COL), Colson, K.O. (COL), Greenway, J. R. (COL), Bason D. W. (LTC), Clarke, E. F. (LTC), Colket, C. H. (LTC), Mitchell, C. C. (LTC), and Shepard, P. G. (LTC). *Division restructuring evaluation, maneuver battalion phase, Volume I, Executive summary*. Fort Leavenworth, KS: Force Structure and Design Directorate, CACDA, 1 September 1978.

Gives good overview of developmental period (Feb-Dec 77), especially DRS concepts. Focuses on battalion test period (May 77-Jul 78). Includes summary of instrumented results and discussion of implications.

- Noyes, G. R. (LTC) and Hoyman, W. W. (MAJ). *Modified tank battalion evaluation (MOD 1 and 2)*. Fort Hood, TX: HQ TCATA, October 1978.

Reports results of an evaluation of four-tank platoon and four-platoon company concepts. Each battalion was evaluated judgementally under ARTEP conditions. Results showed a clear preference for the provisional 30-man, 7-vehicle scout platoon and inclusion of a TOW company. There was not a clear preference for the tank-platoon-company mixtures.

- U.S. Army, HQ TRADOC Combined Arms Test Activity. *Emerging results of DRS Phase II testing*. Fort Hood, TX, December 1978.

Presents results of field tests conducted at Fort Hood. "Vital" issues are: TOW organization, battalion mortars, unit maintenance company, level of combined arms integration, battalion/brigade scouts, DS FA battalion operations and brigade span of control.

- U.S. Army, TRADOC Combined Arms Test Activity, *Restructuring of the heavy division, Phase II* (Executive summary). Fort Hood, TX, May 1979.

Summarizes tests of a restructured brigade in a simulated European environment. Tests emphasized command, control, and communication and maneuver systems in the context of an FTX. Report includes 58 findings (mix of subjective reports and data) and 30 major conclusions. Report's only recommendations are to consider results in Division 86 study, and to include a TOW company in tank and mechanized infantry battalions.

- Doughty, R. A. (MAJ). *The evolution of U.S. Army Tactical Doctrine, 1946-76*. Fort Leavenworth, KS: Combat Studies Institute, U.S. Army Command and General Staff College, August 1979.

Describes changes in tactical doctrine for the generation after World War II in terms of reactions to national security policy, technology, parochialism, and battlefield experience.

Recommended for its discussion of impact of 1976 edition of FM 100-5, Operations, especially transition from Southeast Asia to Western Europe, from low-intensity to mid to high-intensity, and emphasis on defense to obtain maximum from new weapons.

- Szvetecz, E. (COL). *Division restructuring study (DRS) -- Brigade evaluation (Phase III: organization development), Volume I (Executive summary).* Fort Hood, TX: HQ III Corps, 31 August 1979.

Phase III of DRS was a field tryout of a reorganized brigade (rather than the anticipated division) in field and garrison environments. The evaluation was done by the brigade chain of command assisted by an organization development team. Major conclusions (cited in abstract) considered both the current and objective designs: maneuver battalions should be point for integrating combined arms in the form of small, weapons oriented maneuver companies; a staff coordinator (XO) is needed for planning and coordination; battalion target servicing is increased with an organic antiarmor (HAW) company; mortars should be consolidated into a larger platoon at battalion level; scout platoon should be increased; CSS company is desirable, but commander cannot also serve as S-4; maintenance company (with commander also serving as maintenance officer) is effective; brigade can control 3-5 maneuver battalions (4 are the sustaining base). The letter of transmittal includes reservations by the Corps Commander regarding over staffing, tail to tooth ratio, excessive proliferation of communications, SHORAD, and the modified bi-functional staff.

- Colson, K.Q. (COL), Greenway, J. R. (COL), Mitchell, C. C. (LTC), and Shepard, P. G. (LTC). *Division restructuring evaluation, independent evaluation report -- brigade phase, Volume 1 -- Executive summary.* Fort Leavenworth, KS: Force Design Directorate, CACDA, December, 1979.

Document summarizes results of modified tank battalion test, ammunition transfer point evaluation, DS field artillery battalion test, brigade test, REFORGER 79 observations, and division level wargaming and analysis. The results are presented for four systems (C3, maneuver, CS, and CSS) related to sub-systems. The emphasis is on findings that might transfer to Division 86.

- U.S. Army, CACDA. *Division restructuring evaluation (DRE), Volume II, Cost analysis/cost operational effectiveness analysis.* Fort Leavenworth, KS: Force Design Directorate, December, 1979.

Compares costs and effectiveness for the H-series TOE division (C-series) the restructured heavy division (T-series), both configured for the 1985 time-frame. Effectiveness measures were based on war games in Europe. In the offense, the measures of effectiveness showed no consistent advantage for either division but a 12% cost increase for T-series (C-series more cost effective). In the defense, the measures of effectiveness favored T-series by more than the cost increase (T-series more effective).

- Romjue, J. L. *From active defense to AirLand Battle: The development of Army doctrine 1973-1982.* Fort Monroe, VA: Historical Office, U.S. Army Training and Doctrine Command, June 1984.

Detailed, readable overview of the background of GEN DePuy's doctrinal reassessment after the Vietnam War and subsequent revisions to the doctrine that resulted in AirLand Battle. Document is, thus, pertinent to both DRS and Army 86. Document first gives extensive attention to the development of the 1976 Operations FM and reaction to the revised doctrine -- especially emphasis on active defense. The emphasis then shifts to GEN Starry's espousal of the central battle as the conceptual framework for TRADOC and the subsequent revision of FM 100-5. The appendices include several documents pertinent to the DRS and Army 86. Two of GEN DePuy's letters are especially recommended: the "French peasant's soup" letter and correspondence with CSA (GEN Weyand) on the motivation for the doctrinal changes and their impact on organizational structure.

APPENDIX E

ARMY 86 INITIATIVE

ARMY 86 INITIATIVE: OVERVIEW[5]

- Rationale: Reshape operations and organizations to expedite 1980's weapons systems

- Organizational Structures
  - Heavy Division (Centerpiece)
  - Infantry Division (Motorized) -- (Stillborn)
  - Heavy Corps
  - Echelons Above Corps
  - Airborne and Air Assault Divisions -- (Stillborn)
  - Separate (Fixed) Brigade -- (Stillborn)

- Study Methodology
  - Deliberative, participatory approach encompassing entire TRADOC community
  - Monitored in part through General Officer Workshops (GOWs)
  - Formed task forces from schools and integrating centers

[5]Summaries for Army 86 are based on Romjue, J. L. op. cit.

ARMY 86 INITIATIVE: OVERVIEW (Continued)

- Organized task forces around battlefield functions:
  - -- Target Servicing
  - -- ADA
  - -- Suppression & Counterfire
  - -- Interdiction
  - -- Command, Control, Communications, & EW
  - -- Mobility
  - -- Surveillance and Fusion
  - -- Log Support
  - -- Reconstitution
- Doctrinal concepts clearly preceded organizational designs
- Analytical underpinning derived from AirLand Battle doctrine:
  Battlefield Development Plan
  - --Calculus of the Central Battle
  - --Where all aspects of fire power and maneuver coincide
  - --Operational as well as tactical level of war

ARMY 86 - HEAVY DIVISION: CONCEPTUAL FEATURES

- Maximum fire power forward
- Improved command and control
- Increased fire support and air defense
- Improved combining of arms
- Increased leader-to-led ratio
- Smaller, less complex combat companies and platoons
- Unencumbered maintenance and administration/logistics

ARMY 86 - HEAVY DIVISION: ORGANIZATIONAL FEATURES

- Four line companies (vice three) in maneuver battalions
- New Anti-Tank Missile Company in Mechanized Infantry Battalion
- New, robust Air Cavalry Attack Brigade
- Nine heavier howitzer batteries of 155-mm SP Artillery
- Combined 8-inch Howitzer/MLRS Battalion
- Target Acquisition Battalions (vice batteries)
- Increased intelligence assets: quick-fix, SOTAS, and surveillance radars
- Increased engineer support at corps level
- Air defense guns and missiles increased and centralized
- Composite Brigade Support Battalion

ARMY 86 - INFANTRY DIVISION (MOTORIZED): CONCEPTUAL FEATURES

- Dual NATO and contingency operations capability
- Integrated new technology
- Strong anti-armor
- High survivability
- High tactical mobility
- High versatility
- Strategic deployability

ARMY 86 - INFANTRY DIVISION (MOTORIZED): ORGANIZATIONAL FEATURES (NOT IMPLEMENTED)

- Motorized Infantry Battalions
- Mobile Protected Gun Battalions

ARMY 86 - CORPS: CONCEPTUAL FEATURES

- Concurrent operations against first and second echelon forces
- Protection of rear areas
- Sustainment and reconstitution of combat power
- Integration of air-land battles
- (Administrative) Included Separate Brigade studies

ARMY 86 - CORPS: ORGANIZATIONAL FEATURES

- AC/RC integration
- 85K personnel D Day to 132K on D+180
- Dedicated and area support to divisions (CSG and ASG)

ARMY 86 - ECHELONS ABOVE CORPS: CONCEPTUAL FEATURES

- Integrated battlefield
- Joint and combined operations
- Six-month build up
- AC/RC integration

ARMY 86 - ECHELONS ABOVE CORPS: ORGANIZATIONAL FEATURES

- Centralized planning and execution by Theater Army HQ
- Decentralized execution by area and functional organizations
- Flexibility to increase or decrease with Theater mission
- 185,000 personnel D Day to 421,000 on D+180

DOCUMENTS FOR ARMY 86 INITIATIVE

Introduction

Though the Army 86 study extended beyond the Division echelon, the documents in this section emphasize echelons at or below divivison. The documents are listed chronologically within the following subdivisions:

- Heavy Division
  - Historian Reviews
  - Development
  - Transition
  - Analysis Subgroup
- Infantry Division (Motorized)
  - Development
  - Air Assault/Airborne
- Separate (Fixed) Brigade

The most comprehensive sources are the two Romjue histories (see below under Heavy - Historian, Jun 82) and his review of the evolution of doctrine (cited under DRS, Jun 84). In addition the following documents are notable:

- Each task force prepared an interim report of its findings for the second General Officer Workshop (GOW II). The executive summaries of those reports (see Heavy - Development, Oct 79) are included as are the slides for the briefings at GOW II (see Heavy - Development, Apr 79).

- The briefing to the Chief of Staff Army (Heavy - Development, Aug 80) is a very impressive lay-down of the rationale and objective design for the heavy division.

- The final report by Greenway et al. (Heavy - Development, Oct 81) gives a useful comparison with the H-series organizations.

- TRADOC historians prepared several memoranda of interviews of key individuals in Division 86 and discussions at briefings (Heavy - Historian, Jan 78-Jul 81). These memoranda give insight into the motivations for many of the decisions.

- One distinctive feature of the Division 86 approach was the inclusion of an Analysis Subgroup. Memoranda of their meetings are included as a subsection.

- Because of the magnitude of implementing the revised structure, the guidance for the transition illustrates the type of decisions that will confront future designers.

Documents

Army 86 - Heavy Division: Historian Reviews

♦ U.S. Army, TRADOC, Memoranda for Record, January 1978 to July 1981.

Folder includes ten MFRs related to Division 86 study. Potentially very valuable.

(1) Subject: General Starry Interview, 25 January 1978, 26 January 1978. Discusses problems with DRS tests. "Too many things were being tested and there were so many variables in the equation that it was impossible to judge the results."

(2) Subject: Historical Office Interview with COL Pokorny, 13 June 1979. COL A. G. Pokorny -- departing Chief, ODCS Combat Developments Analysis Directorate -- was interviewed on the Battlefield Development Plan (BDP), DRS, and Division 86. Pokorny stresses the importance of BDP as a new look at the battlefield functionally. Also contrasts process for DRS with process for Division 86. Provides some examples of resistance to change related to critical tasks.

(3) Subject: Division 86 Conference at Fort Lee, VA, 4-5 April 1979 (GO II), 1 September 1979. Summarizes presentations and some reactions from GO II [which author (Romjue) attended]. Also describes major decision from night session. Especially valuable summary of General Starry's view and directions.

(4) Subject: Division 86 Conference at Fort Benjamin Harrison, IN, 12 July 1979, 1 September 1979. Describes issues outstanding prior to CSA briefing. Includes detailed discussion of Fixed Brigade Division. Other issues related to the "total artillery alternative," DIVADA justification, target servicing (armored cav squadron and ACAB), and battle management for the Soviet 2nd echelon.

(5) Subject: Briefing the Chief of Staff on Division 86, 27 July 1979, 30 August 1979. Episodic comments on variety of topics. Some discussion on closing out DRS. Includes discussions on fixed brigade, centralized maintenance, and ADA battalion. Worth reading for closing exchange between General Meyer and General Starry.

(6) Subject: Division 86 GO III, 22-23 August 1979, 30 August 1979. Summarizes discussions at GO III. Comments concern DISCOM and fixed brigade ("Army not culturally ready"), as well as wide-ranging general discussion.

(7) Subject: DIVISION 86: In-Process Review for Chief of Staff, Army, General Meyer, and Army Commanders Conference, 20 November 1979. These briefings signalled completion by TRADOC of the Division 86 development phase. Information comes from interview with LTC Bittrich: Closed out heavy brigade; CSA did not like the armor-heavy/mech-heavy ratios. Also describes plans for compressed process for Light Division, Corps 86, and EAC.

(8) Subject: Light Division General Officer Review Conference, Headquarters TRADOC, 14-15 January 1980, 20 March 1980. Summarizes task force presentations. Describes General Starry's reaction to 5,000-space overflow of 14,000 constraint: directed complete new start. Richardson: "too protective...not innovative...influence of the heavy division was evident." Starry: "need General McNair's ghost here."

(9) Subject: Corps 86/EAC 86 General Officer Workshop, 19-20 May 1980, Fort Leavenworth, 23 May 1980. Records discussion highlights, decisions, and guidelines from workshop. General Starry was especially critical of Theater Army within EAC. In addition, directed all concepts to be cleaned up (mix organizations, functions, and concepts). Memo includes corps constraints.

(10) Subject: Historical Office Interview with Colonel Greenway on Army 86, 21 July 1981, 24 July 1981. Frank discussion by former Chief of the Force Design Directorate at CACDA from fall 78 to May 81. Discussed heavy division; light division (notable anecdote on disagreement on concept between General Starry and General Meyer), including HTLD and mechanization trend, Corps 86 (impact of change on direction), and echelons above corps, especially theater army's function.

♦ Romjue, J. L. *A history of Army 86, Volume I, Division 86: The development of the heavy division, September 1978-October 1979*. Fort Monroe, VA: Historical Office TRADOC, June 1982.

Covers the first year of the Army 86 studies which saw the development of the heavy division. Describes events and concepts from division's origin in DRS (1976) to presentation of the concept to the Army Chief of Staff. Document is a superb narrative of options and decisions by time phase. Within phase, generally summarizes actions by task force. This is the "sanitized" version of an earlier edition.

♦ Romjue, J. L., *A history of Army 86, Volume II, The development of the light division, the corps, and echelons above corps, November 1979-December 1980*. Fort Monroe, VA: Historical Office TRADOC, June 1982.

Covers the second year of the Army 86 studies. Describes the design of the light division, the heavy corps, and echelons above corps. Since the period also included final design issues of the heavy division, the document includes valuable treatments of the rationale for decisions related to these heavy division issues: ACAB and Reconnaissance Squadron, battalion ratio, electronic warfare and CEWI Battalion, and corps support.

Army 86 - Heavy Division: Development

- U.S. Army. Letter ATCD-AN from CG TRADOC to CDR CAC, Subject: Combat Developments Study Directive: Division 1986 (Div 86), 31 October 1978.

Provides guidance to develop Army's heavy divisions to facilitate integration of materiel systems, operational concepts, and human resources. Lays out objectives, scope, limitations (Europe), assumptions, essential elements of analysis, constraints (18,000 with allocations to critical tasks), alternatives, methodology, environment guidance, and support and administration responsibilities.

- U.S. Army, TRADOC. Briefing handout GOW II, Division 86 Principles of Force Structuring, 4 April 1979.

Principles established by General Starry. Task forces were to test their designs of combat units in terms of the principles.

- U.S. Army. Briefings for General Officer Workshop II, Fort Lee, VA, 4-5 April 1979.

Slides from each task force presentation at GOW II. In some cases, materials include text of briefing.

- Memorandum ATCG. Ghost (LTC George Dramis) to General Starry, Subject: Historical Background on Three Versus Four Companies, 16 May 1979.

Reviews sequence of decisions in Atomic Field Army, Pentomic Division, MOMAR, and ROAD that resulted in three companies. Concludes that change from four to three companies was based on judgment rather than analysis. The judgment was based in part on a desire to eliminate the five company infantry battle group, in part by 15,000 man ceiling, and by the "antique, obsolete and weak" triangular concept. As a result, move back to four companies does not constitute "backing into a mistake."

- U.S. Army Administration Center. *1st interim report -- Division 86 -- Human dimension task force*. 30 October 1979.

Document includes analysis of soldier life cycle and procedure for assessing the need for redundancy. The analysis of the soldier life cycle examines factors which contribute to or detract from primary group cohesion. The redundancy procedure determines whether there is a need for redundancy, identifies candidate positions, specifies alternatives, and conducts cost analyses.

♦ U.S. Army Air Defense School. *Air defense's Division 86 task force, 1st interim report.* 30 October 1979.

Documents work by the Air Defense Task Force. Format describes efforts in preparation for the three GO Workshops. Appendix is draft concept statement of air defense for Corps 86.

♦ U.S. Army Intelligence Center and School. *First interim report, Division 86 -- Surveillance/fusion task force historical report, Volume I -- Executive summary.* 31 October 1979.

Documents development of the objective Division 86 S/F organization from Aug 78 through Sep 79. Includes alternatives for a Reconnaissance Surveillance/Target Acquisition unit. Enclosures provide guidance, alternatives, and briefing for RSTA.

♦ U.S. Army Intelligence Center and School. *First interim report, Division 86 -- Surveillance/fusion task force historical report, Volume V -- Special studies (fixed brigade).* 31 October 1979.

Gives brief summary of role of surveillance/fusion (S/F) task force in the heavy/fixed brigade developmental effort. Value of the document lies in the following four enclosures:

- Message from CDR USAARMC to Distribution, Subject: Heavy Brigade Concept for Division 86, 18 December 1978. Defines elements of the brigades (4 heavy battalions and brigade base) and discusses impact on the division.

- Message from CDRUSAICS to CDRUSAARMC, Subject: Heavy Brigade Concept for Division 86, 28 December 1978. Contains comments and recommendations for S/F role based on previous studies.

- Message from CDR USACAC to Distribution, Subject: Heavy Brigade Concept for Division 86, 2 Feb 79; and response from CDR USAICS, 5 Feb 79. Response provides requested information on doctrinal implications, impact on hardware/software programs, and how S/F resources should be allocated.

- Surveillance/Fusion Concept for Fixed Brigade, undated. Discusses critical subtasks (target acquisition, situation assessment, IPB, and OPSEC support), raises issues to be addressed prior to implementation (e.g., how can systems which require a centralized automated data base and centralized tasking be effective in fixed brigades?), and sketches a potential wiring diagram.

- U.S. Army Field Artillery School. *Field artillery Division 86 historical report, Volume I, Executive summary, and Volume II, Chapter 4, Special studies.* Undated (ca October 1979).

Executive summary gives overview of operational concepts and organizations as well as a summary of insights and shortfalls. The chapter on special studies gives procedures and results of four studies: (a) artillery ammunition expenditure rates, (b) Soviet field artillery nodes, (c) TACNUKE, and (d) intelligence, surveillance and target acquisition (ISTA) organizations.

- U.S. Army Combined Arms Combat Development Activity. *Target servicing Division 86 task force, 1st interim report.* Undated (ca October 1979).

The task force was formed to structure infantry, armor, and aviation elements. Document traces the evolution of the 4-3-4 tank battalion, reconnaissance squadron, the air cavalry attack brigade, the evolution the heavy (fixed) brigade and combined arms battalions, and the development of the mechanized infantry battalion.

- U.S. Army, TRADOC. *Interim report, Division 86 mobility task force, Volume I -- Executive summary.* 13 November 1979.

Describes procedures to develop structures for engineer battalion and NBC company. Also lists materiel shortfalls which could improve mission performance of the division.

- U.S. Army Logistics Center. *1st interim report Division 86.* 17 December 1979.

Summarizes actions from Oct 78 to Oct 79 by Logistics Center related to development of Division 86 DISCOM. Appendices summarize completed supporting studies on airlift requirements and reconstitution.

- U.S. Army, TRADOC. Message from CDR TRADOC to CDR USAVAC, Subject: Battlefield Function Terminology, 26 February 1980.

Reiterates definitions of battlefield functions: target servicing, counterfire, interdiction, air defense, mobility/countermobility/survivability, battle support, reconstitution, C3, ISTA, and force movement. Definitions include subtasks.

- U.S. Army. Message from CDRUSAARMC to CDRUSACAC, Subject: Recon Sqdn for Heavy Division 86, 27 March 1980.

Armor School recommends that the heavy division recon sqdn consist of three ground troops and two aero recon troops. Lays out tasks to be performed by ground troops and general capability of aero troops. Companion message from Infantry School supports recommendation of three ground troops and at least one aero troop for heavy division. Recommends two-two mix for light division.

- U.S. Army. *Airlift sortie requirements, Division 86 -- Heavy objective division, H-series infantry division.* Newport News, VA: Military Traffic Management Command, March 1980.

Provides equipment aggregation data airlift (C-5A and C-141B) sortie requirements for an H-series Infantry Division and the Division 86 - Heavy Objective Division (as of January 1980).

- U.S. Army. Message from HQDA to CDR TRADOC, Subject: DA Staff Comments on Division 86, 19 May 1980.

Summarizes insights and comments from Army staff on three topics: (a) Strong resistance to reducing role of MPs in traffic control (passing task to brigade scout platoons); (b) medical companies should not be organic to brigade support battalions; and (c) question missions and size of NBC Company.

- U.S. Army, CAC. Message from CDR USACAC to Distribution, Subject: 16-17 Jun Army 86 IPR -- Results/Taskings, 24 June 1980.

Formalizes decisions made at IPR regarding Division 86, Corps 86, and Echelons Above Corps. IPR replaced GOW IV for Division 86.

- U.S. Army. *Operational Concept for Heavy Division Operations -- 1986.* 8 July 80.

Sets forth an operational concept for heavy division operations on the 1986 battlefield. Concept is structured in four principles: (a) view battlefield in terms of areas of influence and interest; (b) attack deeper enemy echelons before they can affect operations of subordinates; (c) since US forces will be outnumbered at outset, US forces will initially defend, and (d) defender takes the initiative and becomes the attacker. Concept defines the 10 battlefield tasks (air defense; battle support; command, control, and communications; counterfire; force movement; interdiction; intelligence, surveillance, and target acquisition; mobility, countermobility, and survivability; reconstitution; and target servicing). Annexes lay out the operational concepts for all battle tasks except force movement. While there is a section for limitations of the overall division and each battlefield task, only battle support contains an entry (requires an external source of backup logistics support).

♦ U.S. Army. Message from COMDT USAES to CDRCAC, Subject: Div 86 Countermine Review, 17 July 1980.

Stresses importance of countermine operations and admits that no divisional sub-unit can perform high speed detection and neutralization division-wide. Argues against conclusions of shortfalls in the countermine program drawn from DIVWAG results. Argument is based on inadequacies in DIVWAG methodology.

♦ U.S. Army, CACDA. Briefing to CSA, A Structure for the Army of the 90's, 1 August 1980.

Slides provide extraordinarily complete lay-down of concepts and organizational designs for Heavy Division 86, Infantry Division 86, Corps 86, and EAC. Message from General Starry describes CSA decisions and guidance. All substantive recommendations were approved. Guidance for Heavy Division 86 concerned postal services, mortar structure (81 vice 107), battalion mix, mine clearing capability, and primary mission of DS artillery (direct support of maneuver forces). Guidance for ID86 concerned Army Science Board input, APAS, foxhole strength, mix of battalions, ACAB, engineer capability, and air defense organization for the division.

♦ U.S. Army, TRADOC. Memorandum for BG Morelli, DCSDOC, Subject: Proposed Army 86 Personnel and Administrative Support Structure, 5 September 1980.

Correspondence between MG Blount and MG Pennington re Army 86 personnel and administrative support structure. MG Pennington (The Adjutant General) expresses overall concern about the lack of doctrine related to personnel and administration, especially in light of the small size of the AG Company. Specific concerns relate to replacement operations, bands, and morale support. Recommends a P&A Battalion for Division 86.

♦ U.S. Army. Message from COMDT USAES to Distribution, Subject: ID 86 Engineer Company Commander, 29 December 1980.

Argues for O-4 Engineer Company commander (vice proposed O-3).

♦ Greenway, J. R. (COL), Beltson, R. D. (COL), and Blankenship R. E. (CPT). *Division 86 final report*. Fort Leavenworth, KS: Force Design Directorate, October 1981.

Documents events from August 1978 (study inception) to August 1980 (approval). Report structure describes differences between H-series armored division and Div 86 structure for each of the battlefield tasks. Appendices summarize four division level wargames and the Force Structure Trade-off Analysis.

Army 86 - Heavy Division: Transition

- U.S. Army. Message from CDR USALOGC to CDR TRADOC, Subject: Division 86 Input to TAA-87, 4 April 1980.

Summarizes CSS portion of transition plan (to Division 86 objective structure) and proposes its plan for adoption in planning for implementation of all divisions. Expresses concern about active space shortfall in non-divisional CSS force structure.

- U.S. Army. Letter from The Adjutant General to Distribution, Subject: Army 90 Transition Planning, 14 April 1980.

Lays out the management of incremental changes to heavy division, light division, corps and echelons above corps.

- Babbitt, L. A. (LTC), Burney, S. M. (LTC), Mangrum, J. W. (LTC), and Bartosik, H. J. (MAJ). *Implementation of Change (IC)*. Bethesda, MD: U.S. Army Concepts Analysis Agency, 30 June 1980.

Addresses problem of lack of management system for controlling the implementation of approved TOE changes into the force structure. Evaluates eight alternatives. Recommends two: (a) Document requirements for changes within 6 months (to make current systems function as intended); and (b) coordinate management of TOE changes with force structure management (apply to TOE only changes for which resource/ALO/ readiness implications are acceptable).

- U.S. Army, CAC. Message from CDR USACAC to CDR TRADOC, Subject: Transition to Division 86 Organizations, 14 July 1980.

Stresses importance of modifying organization for Division 86 prior to introducing new major materiel systems, such as IFV, CFV, M1, ITV, and UH-60. Argues that organizations will be improved even without equipment but equipment without organization changes will present problems associated with interim doctrine and inability for tactical cross attachment.

- U.S. Army, TRADOC. Message from CDR TRADOC to DA, Subject: Transition of Div 86 Organizations, 24 July 1980.

Restates TRADOC position to convert mechanized infantry and tank battalions before they receive new items of equipment.

♦ U.S. Army. Letter of Instruction from TRADOC Chief of Staff to Distribution, Subject: Force Modernization Transition Planning, 15 September 1981.

Describes the transition planning cycle and delineates command responsibility for the phased conversion from then-current organizations to objective Army organizations.

♦ U.S. Army. *Personnel supportability assessment, Heavy Division 86 transition, Volume I.* Washington, DC: Army Soldier Support Center, 1981.

Assesses Heavy Division 86 interim organizations based on comparison with H-series MTOE and over time. Identifies increases in officer, warrant officer, and enlisted positions and potential problem areas.

♦ U.S. Army. *Personnel supportability assessment, Heavy Division 86 transition, Volume III.* Washington, DC: Army Soldier Support Center, 1981.

Projects each officer specialty and warrant officer and enlisted MOS for impact on Division 86 transition. Projections provide a supportability conclusion and, in some cases, recommendations to resolve supportability problems.

♦ U.S. Army. DF from DCSD to CG, Subject: High-Low Mix Study, 9 February 1982.

Presents recommendations with brief rationale for echelon to mix high and low technology. Systems addressed are: M1 tank, M2 IFV, M3 CFV, DIVAD Gun, AH-64, UH-60, and SINCGARS.

Army 86 - Heavy Division: Analysis Subgroup

♦ U.S. Army. Message from CDRTRADOC to Distribution, Subject: Division 86 Analysis Subgroup, 12 December 1978.

Directs task forces to be prepared to discuss: issues/alternatives to be analyzed; proposed methodology to evaluate alternatives; proposed models; measures of effectiveness; and contractual study support.

♦ U.S. Army. Memoranda for Record, Subject: Division 86 Analysis Subgroup Meeting, 20 December 1978, 12 February 1979, 30 March 1979, and 24 July 1979.

Summary of presentations at four meetings. Good source of overview of studies and models, but memos rarely include findings.

- U.S. Army. Memorandum for Chief of Staff, U.S. Army, Subject: The Army's Analytical Approach to Force Design--DECISION MEMORANDUM, 9 August 1979.

Recommends that CSA sign a memorandum for Secretary of Defense that outlines the analytical rigor in DRS and Division 86. Purpose is to get support on reducing "piecemeal alteration of our program by OSD analysts." In addition, memorandum is an excellent summary of distinctive features of the design initiatives.

Army 86 - Infantry Division (Motorized): Development

- U.S. Army. Letter from Commander TRADOC to Commander CAC, Subject: Combat Developments Study Directive: Light Divisions for the Next Decade (LD 86), 29 October 1979.

Provides guidance for study to develop light divisions with significantly increased firepower. Specifies: scope; essential elements of analysis; constraints (14,000 ID, 13,000 AA/AB); and methodology. Concept statement is included as an enclosure.

- U.S. Army, TRADOC. Message from CDR TRADOC to DA, Subject: Light Division Cavalry Study, 2 January 1980.

Recommends structure of the cavalry squadron for light divisions which includes a reconnaissance squadron and an ACAB similar to that for the heavy division with the possibility of additional lift assets.

- U.S. Army, CAC. Letter to Distribution, Subject: New Equipment for ID 86, 8 January 1980.

Expands criteria for new systems to include hardware under development with procurement funding (but not planned for fielding by 1986); systems under development but without programmed procurement funds; notional systems that possess low technological risk; and foreign systems of allied nations. Adds requirement that equipment be transportable via C-141. Lists new equipment by functional area by funding category.

♦ U.S. Army, CAC. Message from CDR USACAC to Distribution, Subject: LD 86 Prebrief Results--Engineer/Infantry/Artillery, 9 January 1980.

Directs Engineer School to study existing technology to enhance survivability. Directs Infantry School to enhance lethality of the infantry squad and to develop an anti-tank weapons system for 1000-2000 meters. Directs Artillery School to examine means of increasing survivability of weapons crews in the form of dug-in positions with overhead cover.

♦ U.S. Army, CAC. Message from CDR USACAC to Distribution, Subject: Infantry Division 86 Planning for Organizational Development, 19 February 1980.

Presents the target servicing organizational structure as the model for the infantry division. Also presents readjusted constraint figures for all task forces.

♦ U.S. Army, CAC. Message from CDR USACAC to Distribution, Subject: LD 86 Planning Guidance, 7 March 1980.

Confirms guidance from meeting at Fort Leavenworth on 6 March 1980. Guidance is listed by functional task force.

♦ U.S. Army. Message from CDR USAFACFS to Distribution, Subject: Light Infantry Division Artillery 86 Organization, 3 June 1980.

Summarizes decisions by CSA to: (a) retain the M198 howitzer as infantry division direct support weapon; (b) retain the M102 as the airborne and air assault direct support weapon; and (c) structure light infantry divisions with double gun capability.

♦ U.S. Army. Memorandum for CDR CAC, Subject: Infantry Division 86 Analysis, 11 March 81.

Summarizes approaches for gaming ID86 design alternatives:

- 1 tank, 8 infantry bns, 3 155 bns (DS), ACAB, CEWI bn
- 2 mobile protected gun bns, 8 motorized infantry bns, 3 155 bns (DS), ACAB, CEWI bn
- 2 mobile protected gun bns, 4 motorized infantry bns, 4 infantry bns, 3 155 bns (DS) ACAB, CEWI bn

♦ U.S. Army, CAC. Memorandum, ATZL-CAF-S, Subject: Study Guidance for Mobility Analysis of ID-86, 15 April 81.

Lays out geographic areas, terrain, and missions for mobility scenarios. Also lists three essential elements of analysis: tactical concepts, required organic mobility by echelon, and optimum mix of battalion types. Suggests seven measures of effectiveness (e.g., force ratio).

- U.S. Army. Memorandum for Director Force Development Directorate, Subject DCDR, CACDA, IPR, 21 July 81.

Gives overview of plans for IPR on mobility analysis. Includes MFR of SAG IPR on gaming results and CAC CDR IPR. Of special interest is LTG Richardson's interest in combat effectiveness between unit mixes despite expectation that decision will be based on budget constraints.

- U.S. Army. Memorandum for Deputy Commander, CACDA, Subject: ID86 Mobility Analysis, 27 July 81.

Synopsis of mobility study. Recommends: (a) 8 motorized and 2 mobile protected gun battalions; (b) CB (AA) structured with 2 lift companies. Tabs give operational overview of tactical effectiveness measures: mission performance, tactical effectiveness, number of positions prepared and fought, usage rate of personnel carriers, and costs.

- U.S. Army. Operational Concept for Infantry Division 86, 20 August 1981.

Sets forth an operational concept for infantry division operations on the 1986 battlefield. Emphasizes operations of forward deployed forces and contingency operations.

Army 86 - Infantry Division (Motorized): Air Assault and Airborne

- U.S. Army. Operational Concept for Airborne Division, 9 November 1981.

Specifies limitations and operational concept for the air assault division. The concept includes capabilities and mission; command and control; close combat; intelligence and EW; communications; fire support; air defense; combat support, engineering and mine warfare; and combat service support.

- U.S. Army. Operational Concept for Air Assault Division, 10 November 1981.

Specifies limitations and operational concept for the air assault division. The concept includes capabilities and mission; command and control (airmobile shelters as TOC,

airspace management, and MP support); close combat (tactical environments, contingency operations, and operations with forward-deployed forces); intelligence and EW; communications; fire support (organic and nonorganic); air defense; combat support, engineering and mine warfare; and combat service support.

- U.S. Army. Message from DA WASHDC to CDRUSACAC, Subject: Air Assault Division 86 and Airborne Division 86 (AA/AB 86) Study Guidance, 2 March 1982.

Generally supports design parameters. Cautions against excessive reliance on airlift constraints: identify assembly/disassembly times if sectionalize; substitution of C-5A for three C-141B loads questionable; sortie constraint force designer tool rather than real world airlift allocation.

- U.S. Army, CACDA-FDD. Talking Paper, Subject: Air Cavalry Squadron AA86, 31 March 1983.

Recommends that Army 86 Air Cavalry Squadron be approved for AA 86 (less personnel intense, more deployable, able to perform economy of force missions when task organized). FORSCOM and 101st Div opposed reductions in number of AH and wanted capability for economy of force without being task organized. Paper includes briefing slides from CSA IPR.

- U.S. Army, CACDA-FDD. Talking Paper, Subject: Retention of 1/4-T Trucks in the AB/AA86 Division, 4 April 1983.

Recommends deleting 1/4-T truck and integrating HMMWV/CUCV family of vehicles throughout the two divisions. FORSCOM favored retention of 1/4-Ts for positions that do not require a large vehicle (e.g., rifle company commander). Background materials include an analysis of strategic deployability impact of HMMWV vs 1/4-T.

- U.S. Army, CAC. Letter to Commander TRADOC, Subject: Air Assault Division 86 and Airborne Division 86 (AA/AB86), 3 May 1983.

Transmits decision documents covering the AA/AB86 study. Presents result overall for each division and individual organizations. Maintains basic Army 86 precepts (AirLand Battle, new equipment, initiation of requirements for materiel, and optimizing human resources). Provides fact sheets for each functional area for each division.

Army 86 - Separate (Fixed) Brigade

- U.S. Army, CAC. Message from CDR USACAC to USAARMAC, Subject: LD 86 Division Alternative, 26 February 1980.

Requests information regarding adjustments to C3I structure to support fixed brigade concept, role of the aerial brigade, and conditions for division commander to remove an organic battalion from a brigade.

- U.S. Army. Message from DA to CDRUSACAC, Subject: Doctrinal Requirements for Separate Brigade, 19 March 1981.

Sets out doctrinal requirements for separate brigades: nine missions (e.g., reconnaissance in force) which can be performed without having to use all or part of a division. Highly recommends that the separate brigade remain part of the force structure.

- U.S. Army, TRADOC. Letter, Subject: Combat Developments Study Directive, Separate Brigades of the Next Decade (BDE-86), 14 December 1982.

Lays out context and responsibilities for developing heavy and light brigade size structures which perform as a major subordinate element of a corps or theater force. Administratively, Separate Brigades-86 was a sub-study of Corps-86.

- U.S. Army, CAC. Letter, Subject: Combat Development Study Plan, Separate Brigades of the Next Decade (BDE-86), 19 April 83.

Elaborates on the study directive (SIB 001). Recommends primary measures of effectiveness and essential elements of analysis (overall and by critical battlefield task). Enclosures provide design guidance for heavy and light brigades, logistic planning factors for the heavy brigade, the analysis plan, standards for documenting the organization with automated unit reference sheets, and the study schedule.

- U.S. Army, CACDA. CSA briefing: TRADOC Design Initiative for the Second Infantry Division, undated (ca July 1984).

Proposes structure for Division HHC, MP Company, Engineer Battalion, ADA Battalion, Signal Battalion, MI Battalion, Chemical Company, Brigade HHC, Tank Battalion, Infantry Battalion, DIVARTY, DISCOM, and EAD Transportation Company.

♦ U.S. Army, TRADOC, Office of the Deputy Chief of Staff for Doctrine. *Concept statement for the separate infantry brigade (light).* 5 September 1984.

Outlines the concept for the separate infantry brigade (light): Deploy rapidly to reinforce the U.S. Army corps and defeat level III (battalion size or larger) enemy threats in the corps rear area. Includes brief summaries of the concept for functional areas. Folder includes briefing slides for the concept. (Recommend reference to item SIB 005 for text, augmented by slides in this item.)

♦ Smith, O. M. (LTC) and Baker B. (MAJ). Fact Sheet, Subject: Comparison of Separate Infantry Brigade, Light (SIBL) against the Soviet Airborne, Bn, Regt, and Div, Undated (ca October 84).

Cursory comparison of SIB(L) against an airborne threat in a corps rear battle scenario. Recommends more BMD killers and additional TOWs.

♦ U.S. Army, CAC. Briefing, Subject: SIB(L) Design Issues (re CG TRADOC Brief, 21 Nov 84), 16 November 84.

Slides and discussion related to three issues:

- TOW weapons in anti-tank company unnecessary (Cdr, USAREUR). CAC recommends three platoons of 25mm and one platoon of TOW.
- Tactical satellite capability in signal company in lieu of the TRC-145 (multichannel) (Cdr, USAREUR). Recommended.
- Add vehicles to support battalion to provide for 100% mobility (Cdr, FORSCOM). Recommended.

♦ U.S. Army, CACDA. *Operational concept for separate infantry brigade (light).* 22 January 1985.

Provides concept to assign the separate infantry brigade (light) to a US corps to meet the requirement for a flexible and lethal fighting force in the corps rear area. Nine appendices discuss the employment of assets in each functional area: command and control; close combat; fire support; air defense; communications; intelligence and electronic warfare; combat support, engineering, and mine warfare; combat service support; and aviation.

♦ U.S. Army, CACDA. Briefing: 2ID and Separate Infantry Brigade (Light) Decision Brief to CSA, 1 May 85.

Includes slides, summary of pre-brief controversies (opposed by DCOPS -- "boy doing man's job"), and summary of CSA comments regarding SIB(L). Put SIB(L) on shelf. Comments support 2ID but package does not include slides related to 2ID.

- U.S. Army, CAC. Letter ATZL-CAF-F to CDR US Forces Caribbean with enclosures: Concept statement for the theater defense force (TDF) and design parameters, 13 December 1985.

Solicits current organization, wartime missions, threat, other required Army TOE units, and capability to work with joint or combined forces. Transmits the concept statement for the general TDF, as well as concept considerations and design parameters.

- U.S. Army, CAC. Message from CDR CACDA--FDD to Distribution, Subject: AOE Theater Defense Brigade (TDB) Design Guidance, 11 February 1986.

Provides design guidance from HQDA, ODCSOPS for the TDB redesign.

- U.S. Army, CAC. Message from CDR CACDA -- FDD to Distribution, Subject: Theater Defense Brigade (TDB) -- Design Strawman, 3 April 1986.

Gives overview of DA guidance, specifies assumptions, and provides crosswalk between concept requirements, design parameters, and standard AOE options.

- U.S. Army, CAC. Briefing to Chief of Staff of the Army, Separate Infantry Brigades (SIB) and Theater Defense Brigades (TDB), 18 December 86.

Slides and text of briefing to CSA as described in title. Outlines conflict between TRADOC and NGB regarding caliber of the artillery. Includes detailed description of SIB in theater defense role, with attention given to variations required by Panama and Berlin.

- U.S. Army, CAC. CSA briefing: Theater Defense Forces, 11 Dec 1987.

Decision brief on structure of Theater Defense Forces (Iceland, Aleutians, Caribbean, and Panama) and alternative design for the Berlin Brigade. Presents overall operating principles then structure for each brigade.

APPENDIX F

HIGH TECHNOLOGY LIGHT DIVISION (HTLD) INITIATIVE

HIGH TECHNOLOGY LIGHT DIVISION INITIATIVE: OVERVIEW

- Rationale: Exploit emerging technologies to develop a division that could perform heavy division missions (NATO support) while maintaining strategic mobility (Southwest Asia/CONOPS)

- Organizational Structures
  - Light Division
    - -- 5 Light Motorized Bns (consolidated original Strike Bn and Motorized Inf Bn)
    - -- 2 Light Attack Bns
    - -- 2 Assault Gun Bns
  - Reorganized as Motorized Division
    - -- 5 Combined Arms Bns (Heavy)
    - -- 2 Combined Arms Bns (Light)
    - -- 2 Light Attack Bns (modified dune buggies)

- Study Methodology
  - High Technology Test Bed (HTTB) -- later Army Development and Employment Agency (ADEA) -- was formed as test group focussed on initiatives to transition 9ID to a high technology division
  - Design evolved on ground
    - -- High involvement of 9ID personnel
    - -- 17 months between MOU and operational concept
  - Organizational flaws allowed lack of consensus among key organizations:
    - -- DA: Chief of Staff, Army was principal decision-maker on even routine issues
    - -- TRADOC: Approval authority for O&O concept and test plans
    - -- FORSCOM: Command / control (nominal and absentee)
    - -- DARCOM: Provision of materiel development support and testing
    - -- HTTB: Development and validation of O&O concepts
    - -- 9ID: Test division
  - Validation tests used equipment already in system or required abbreviated development cycles

HIGH TECHNOLOGY LIGHT DIVISION INITIATIVE: CONCEPTUAL FEATURES[6]

- Structure around weapons system
- Develop units with superior ground/air mobility
- Employ light and lethal combat load
- Deploy using force packaging approach
- Build superior C^3I system
- Achieve survivability through: Tactics, mobility, terrain, night operations, weapons lethality
- Prepare for numerous, widely separated battles
- Capitalize on night/adverse weather operations
- Insure near term force is complementary with heavy force

[6]From U.S. Army (1982). Briefing, 9th Inf Div "Old Reliables."

HIGH TECHNOLOGY LIGHT DIVISION INITIATIVE: ORGANIZATIONAL FEATURES

- Light Motorized Infantry Battalion
  - 3 motorized companies and anti-armor company
  - Equipment: Reconfigured HMMWV, TOW, MK 19, 120 mm-mortar

- Light Attack Battalion
  - 3 light attack companies and CS company
  - Equipment: Reconfigured HMMWV, light attack vehicle (dune buggy), TOW, MK 19, 120- mm mortar, light helicopter

- Assault Gun Battalion
  - 3 assault gun companies
  - Equipment: Reconfigured HMMWV, assault gun, MK 19, 120-mm mortar

- Cavalry Brigade (Air Attack)
  - ATK helicopter battalion, cavalry squadron, air assault battalion
  - Equipment: AHIP, armed helicopter, light observation helicopter, lift helicopter, TOW

- Division Scout Company
  - 3 patrol platoons
  - Equipment: HMMWV and motorcycle

- Transition to Motorized design
  - 5 Combined Arms Bns (Heavy)
    -- 2 assault gun (AG) companies, 1 light motorized infantry (LMI) company, and 1 combat support company (CSC)
    -- Uncertainty about assault gun (planned for M551, eventually reconfigured HMMWV)
  - 2 Combined Arms Bns (Light): 2 LMI, 1 AG, 1 CSC
  - 2 Light Attack Bns: 3 light attack companies, 1 CSC

DOCUMENTS FOR HIGH TECHNOLOGY LIGHT DIVISION (HTLD) INITIATIVE

Introduction

The enclosed documents relate to all phases of the HTLD from its inception through the turbulence in 1988. The following documents are recommended:

- Interview with General Meyer (June 84) gives his account of the spontaneous suggestion of using the 9th Division as a test bed.
- Messages among proponents on concepts to be tested illustrate wide-spread involvement of agencies.
- Tests were conducted in several major FTXs as well as discrete studies. The major overview document for the early tests is *Evaluation of the High Technology Motorized Division* (December 1984). Several examples of tests of equipment and variation of operational employment concepts are also included.
- The history by Huddleston (July 87) is especially illuminating regarding "unofficial" motives and errors.

In addition, histories by Romjue and Hawkins describe the context for the pertinent decisions. These documents are described under Division 86 (Romjue, 1982), AOE (Romjue, 1993), and Future Design (Hawkins, 1993).

Documents

♦ U.S. Army, HQ, DF from DCSCD to DCST, Subject: 9th ID Near Term Enhancements, 17 July 1980.

Document includes message on enhancing fire suppression/interdiction (upgrade DS bns to 155mm), anti-tank (form AT company), survivability (add backhoes and dozers to engineer bn), and EW/ISTA (activate CEWI bn). Response raises questions about source of the additional equipment and resources for training development (e.g., ARTEP) for Air Cavalry Attack Brigade.

♦ U.S. Army. Message from CDR ORDCENSCH to CDR USCAC, Subject: 9ID High Technology Test Bed (HTTB), 24 July 1980.

Proposes six concepts related to maintenance support to be tested by HTTB: consolidated organizational maintenance at battalion level; 100% mobility to all elements of division maintenance battalion; cellular teams in companies of maintenance battalion (fix forward); application of minimum essential maintenance only in combat environment; crew/maintenance concept (one member of each crew trained to 20 SL in organizational maintenance); organizational maintenance company concept.

- U.S. Army, Message from CDR TRADOC to DA, Subject: 9ID Near-Term Enhancements, 18 Aug 1980.

Gives position on proposed near-term enhancements. Concur: convert GS bn and retain 105mm, expedite AH-1S, augment CEWI bn, equip with NESTOR COMSEC, add mine dispensers, and survivability (XM30 masks, XM20 shelters, activate NBC co, body armor). Nonconcur: expedite fielding of VIPER.

- U.S. Army. Message from COMDT INFSCH to CDR USAVNC, Subject: Combat Support Aviation Company (CSAC) for 9th ID Test Bed, 22 September 1980.

Comments on proposals regarding CSAC from Aviation Center that differ from Infantry School preferences. Continue to prefer two platoon CSAC and major as company commander, but will support CSAC if the options are identified as issues.

- U.S. Army. Memorandum of Understanding Between the U.S. Army Forces Command, the U.S. Army Materiel Development and Readiness Command, and the U.S. Army Training and Doctrine Command, Subject: The 9th Infantry Division High Technology Test Bed, 8 October 1980.

Lays out responsibilities for FORSCOM, DARCOM, and TRADOC related to HTTB. Includes concise statement of concept for HTTB.

- U.S. Army. Message from CDR9THINFDIV to Distribution, Subject: Armored Combat Earthmover M-9 (ACE), 29 December 1980.

Argues that ACE must be available for at least a six month period to support brigade engineer company testing (rather than six weeks or three months).

- U.S. Army, CACDA, Operational Concept for High Technology Light Division, 25 March 1982.

Describes limitations and operational concept for HTLD. Concept includes response to situations (primarily NATO) that require rapid build-up of combat power and contingency operations in area similar to Southwest Asia (focus on arid, mountainous regions).

- U.S. Army, [Agency not given], Briefing, "9th Inf Div "Old Reliables," undated [ca April 1982].

Briefing gives mission, parameters, design principles, and operating principles -- fight as deep as possible, contain enemy strength, bypass enemy strength, fight in own rear areas, sustain the force, deceive the enemy, and Army/Air Force interoperability. Also lays out structure and capabilities of subordinate elements.

- Henderson, D. E. (CPT). *Force development test and experimentation (FDTE) of the high technology light division (HTLD) air defense artillery (ADA) battalion.* Fort Bliss, TX: U.S. Army Air Defense Board, June 1982.

Reports assessment of liaison officer (LO) teams and ADA battery G/S. ADA battery G/S assessment included adequacy of air defense, logistical support of FAAR, and ammunition resupply. Major findings were: (a) LO teams were vital; (b) ADA G/S accomplished its ADA mission; (c) FAAR should not be organic to ADA G/S; and (d) ammunition transfer point (ATP) was preferred over ammunition supply point (ASP) because ATP was closer to FLOT.

- Shaw, J. D. (MAJ), Bourquin, G. C. (CPT), Wiggins, R. A. (CPT), O'Connor, M. T. (CPT), Badua, D. R. (SFC), and Reamey, G. R. (SFC). *Force development test and experimentation of infantry division communications (Phase II).* Fort Gordon, GA: U.S. Army Communications-Electronics Board, 19 July 1982.

Reports results of communications test in context of a four-day FTX. Tested communication support by the signal battalion and the impact of the concept and equipment enhancements. Results for new equipment are tentative because of insufficient training prior to test.

- Lewis, V. B., Jr. *Panel report on the 9th Infantry (High Technology Light Division).* Fort Lewis, WA: American Defense Preparedness Association, 14-15 December 1982.

Summarizes findings from meeting to review the division's concepts for weapons systems, tactics, and doctrine. Presents recommendations on funding and support issues, conceptual and equipment weaknesses/concerns, airlift and lodgment, air superiority, deception and stealth, and multipurpose weapons/crews. Recommendations are concise and practical with high potential for future design (especially multipurpose weapons/crews).

- U.S. Army. *HTTB evaluation plan for the light attack battalion.* Fort Benning, GA: Test and Evaluation Coordination Office, Directorate of Combat Developments, USAIS, May, 1983.

Document describes the Light Attack Battalion (LAB) concept, lays out issues for evaluation and measures of effectiveness, and sets milestones. While primary focus is on LAB, plan also addresses HQ Company and Light Attack Company.

- U.S. Army. *Force development testing and experimentation innovative test of light motorized infantry battalion (LMIB).* Fort Benning, GA: U.S. Army Infantry Board, July 1983.

Reports results of subjective field studies investigating organizational and operational concepts of the LMIB (3 light motorized infantry companies, 1 light motorized AA company, and an HHC). Studies used surrogate vehicles and weapons. Found LMIB to be transportable, capable to conduct MTC and delay operations, and to possess adequate C3I capabilities. LMIB was not evaluated on attack, defense, or deep attack.

- U.S. Army. Memorandum to HQDA from ADEA, Subject: Study Evaluation Report of the Light Attack Battalion Study, 6 March 1984.

Comments on USAIS report. Questions the intelligence and logistical analyses, the use of a LAB company as the biggest maneuver unit, and unrealistic movement rates.

- Meyer, General (Retired) Edward C., Interview by Joe D. Huddleston, Fort Lewis, WA, 13 June 1984.

Gives personal perspective on events that led to establishment of HTLD: the reasons he desired a better mix of light and heavy forces and the "essentially...spur of the moment decision" with the Secretary of Defense to create a light division that could accomplish many of the functions of a heavy division. Also discusses his frustration that the division focussed more on equipment than on operational techniques.

- U.S. Army. *External subjective assessment (ESA) of the 9th Infantry Division (Motorized) Phase II - Laser strike FTX data presentations.* Fort Lewis, WA: U.S. Army Combat Developments, Experimentation Center Board, September, 1984.

Provides data collected during the brigade-on-brigade FTX Laser Strike. Addresses 38 issues related to division, brigade, close combat, combat support and combat service support. Includes extensive quantitative data in histogram format and comments and recommendations based on questionnaires. [Companion document to U.S. Army, TRADOC Liaison Element to ADEA, Dec 84 (see below)]

- Ley, M. P. (CPT), Howell, C. J. (SFC), Pettijohn, M. L. (SFC), McMillan, B. S. (SSG), and Deltoro, N. J. (SGT). *9th Infantry Division (Motorized) military intelligence (MI) battalion general support company concept innovative test final report.* Fort Huachuca, AZ: U.S. Army Intelligence and Security Board, 15 November 1984.

Tested the CEWI General Support Company during a brigade-on-brigade FTX (Laser Strike). Company lacked adequate mission equipment (including transportation) and TSOPs were not adequately disseminated (so support to division could not be adequately assessed); organizational structure was generally adequate, preventive maintenance was effective, and supply records and communications equipment were adequate.

- U.S. Army. *Evaluation of the high technology motorized division.* Fort Lewis, WA: Army Development and Employment Agency, December 1984.

Summarizes evaluation of the motorized division (14.1K design). Presents results of tests, studies, exercises, and military judgement related to a set of issues developed by ADEA, TRADOC, AMC, and CDEC. Results are presented for division, close combat, combat support, and combat service support. In all cases results are interpreted as validating the operational concept of the HTMD. Appendices include potentially valuable synopses of 30 studies covered by the evaluation.

- U.S. Army, TRADOC Liaison Element to ADEA. *External subjective assessment (ESA)-9ID(MTZ) Annex A: Assessment issues and findings.* Fort Lewis, WA: Army Development and Employment Agency, December 1984.

Assessment includes literature searches, studies, war games, and observations and results of FTX Laser Strike. Results are organized around 49 assessment issues. Assessment is presented in two formats: a summary briefing followed by a detailed description of findings for each issue. [Companion document to previously listed document, U.S.Army, Sep 84]

- U.S. Army, Army Development and Employment Agency. *Operational concept for an infantry division (motorized).* Fort Lewis, WA: Army Development and Employment Agency, 1 February 1985.

Provides limitations and the operational concept for the ID (MTZ). Despite the revised designation, the concept is strikingly similar to the HTLD concept (HTLD A). Appendices cover each of ten functional areas.

- Black, E. C., III. *Comparative analysis of Army division deployability by air.* Fort Lewis, WA: Army Development and Employment Agency, May 1985.

Compares strategic deployability airlift requirements of 9ID (MTZ) with other types of Army divisions. Results include results of analysis, but bulk of report (and probable source of continuing value) describes the analytical tool used--Automated Air Load Planning System (AALPS).

♦ U.S. Army, ADEA. *9th Infantry Division (Motorized) bench test analysis (BTA) evaluation plan*. Fort Monmouth, NJ: Program Manager Test Measurement and Diagnostic Equipment, 1 April 1986. (This document is an appendix to the four reports listed below)

The bench test analysis methodology was developed to determine the optimum mix of Test Measurement and Diagnostic Equipment. The methodology was applied to 11 organizations, resulting in consistent savings. Four reports represent the organizations:

• Watts, C. and Swift, I. *ADEA TMDE upgrade program bench top analysis (BTA) methodology 9th signal battalion 9ID(MTZ)*. Fort Lewis, WA: ADEA, 11 August 1987.

• Watts, C. and Swift, I. *ADEA TMDE upgrade program bench top analysis (BTA) methodology 520th support battalion (AVIM) 9ID (MTZ)*. Fort Lewis, WA: ADEA, 30 October 1987.

• Watts, C. and Swift, I. *ADEA TMDE upgrade program bench top analysis (BTA) methodology 109th military intelligence battalion 9ID(MTZ)*. Fort Lewis, WA: ADEA, 30 October 1987.

• Watts, C. and Swift, I. *ADEA TMDE upgrade program bench top analysis (BTA) methodology 709th support battalion 9ID(MTZ)*. Fort Lewis, WA: ADEA, 30 October 1987.

♦ Huddleston, J. D. *The high technology test bed and the high technology light division, inception through 30 September 1983* (Draft). Fort McPherson, GA: Military History Office, Office of the Chief of Staff, U.S. Army Forces Command, 30 July 1987.

Well documented study of initial phases of HTLD and HTTB. (Document does not include motorized phases.) Since it draws heavily on oral history interviews, the report tends to emphasize conflicts and miscalculations.

♦ U.S. Army. Message from DA WASHDC to Distribution, Subject: Division Design for Reserve Components, 22 January 1988.

Requests TRADOC to design a smaller, heavy-type division which enhances Reserve Component capability to sustain readiness and meet D+30 deployment requirement.

♦ U.S. Army. DF, Subject: 9th ID (MTZ) Force Structure Reductions, 28 January 1988.

Slides propose force structure to respond to requirement to reduce 2946 military slots from division. Contrasts 9ID proposal with HQDA proposal.

- U.S. Army. Message from CDRICORPS to CDR FORSCOM, Subject: Future of 9ID (MTZ), 13 February 1988.

Argues strongly for preserving motorized concept despite decision not to fund AGS. Opposes rumor of roundout with mechanized SIB ("giving away rapid deployment largely invalidates the entire concept").

- U.S. Army, FORSCOM. DF, Subject: Future designs: 9th ID (MTZ)/National Guard Infantry Division, undated (ca March 1988).

Argues that proposal to link National Guard division designs with 9ID (MTZ) threatens to reduce warfighting capability of 9ID (MTZ).

- U.S. Army, CACDA. DF, Subject 9ID Interim Design, 6 April 88.

Describes interim organization of 9ID: Current 9ID less one brigade slice and rounded-out by one National Guard mechanized brigade.

- U.S. Army, CACDA. Message from CDR, response from CDR I Corps, and response to CDR I Corps, Subject: Redesign of the 9th Infantry Division, 12 April 1988.

Initial message solicits comments on redesign in light of elimination of the armored gun system. Response favors conversion to a standard TOE configuration. Cautions against using 9ID as a test bed for ARNG divisions. Response to response agrees that 9ID will not be designed strictly as a certification vehicle for NG, and describes recommended design as being composed of standard heavy AOE pieces with minor deviations.

- U.S. Army, CACDA. Briefing to CSA: 9th Infantry Division (MTZ) Redesign, 10 May 1988.

Presents design alternatives for 9ID. Includes concise summary of turbulence in motorized design. Presents results from Vinson et al. [see next listed document]. Recommends that 4-3-3 (tank-mech-mtz inf) be the approved design, 81st separate brigade be the roundout, and that 9ID be used to certify the design for NG divisions.

- Vinson, M. E. (CPT), Lee, J. R. (CPT), and Pink A. C. *Redesign of the 9th Infantry Division analysis*. Fort Leavenworth, KS: TRAC, 28 June 1988.

Provides analytical insights into the relative war-fighting capabilities of 14 alternative mixes of battalion types. Study considered mobility, lethality/survivability, sustainability, and deployability. Appendix provides the measures of effectiveness within each category.

APPENDIX G

ARMY OF EXCELLENCE INITIATIVE

ARMY OF EXCELLENCE INITIATIVE: OVERVIEW[7]

- Rationale
  - Reduce "hollowness" by bringing personnel and materiel requirements within scope of Army resources
  - Enhance corps capability to influence the battle
  - Develop strategic mobility for immediate crisis response in regional conflicts

- Organizational Structures
  - Light Division
  - Heavy Division
  - Airborne and Air Assault Divisions

[7]Based on Romjue, J. L., *The Army of Excellence: The Development of the 1980s Army*, 1993.

ARMY OF EXCELLENCE INITIATIVE: OVERVIEW (continued)

- Study Methodology
  - 10-week feasibility study
    - -- Not exceed programmed personnel end strength
    - -- Develop light division for rapid deployment
    - -- Recommend reductions in heavy division
    - -- Consider centralizing assets at EAD
    - -- Redesign corps and EAC structure
  - Formed study group from various schools and centers
  - Followed compressed and accelerated Concept Based Requirements System: Designs followed development of O&O concepts (usually 1-day response, no more than 2 days)
  - Designed light infantry division (LID) from ground up (departure from Army 86)
  - Based heavy division on Army 86 -- reduced redundancy and sustainability
  - Applied augmentation concept (corps plugs) for occasionally used assets
  - Validated LID in certification (more rigorous than DRE)

ARMY OF EXCELLENCE (LIGHT DIVISION): CONCEPTUAL FEATURES[8]

- Commonality of equipment, supplies (including ammunition), and organizational structure
- Optimize designs for low to mid intensity but retain usefulness in NATO
- Reduce number of noncombat soldiers
- Reduce non-tactical overhead
- Provide, as organic elements, personnel and equipment which will always be needed
- Pool occasionally needed equipment at higher echelons

[8]From Hassel & Dickman, *Army of Excellence Final Report, Volume II, the Light Infantry Division*, 29 June 1984.

ARMY OF EXCELLENCE (LIGHT DIVISION): CONCEPTUAL FEATURES (continued)

- Eliminate unneeded links in chains of command, supply, and administration
- Minimize support requirements
- Identify "plugs" of augmenting units
- Maximize use of additional duties, dual-training, and multiple mission individuals and units
- Units need not be self-sustaining
- Support system must be compatible with foot mobility
- Increase leader to led ratio

ARMY OF EXCELLENCE (LIGHT DIVISION): ORGANIZATIONAL FEATURES

- Light Infantry Battalion (9)
  - 3 rifle companies: 3 platoons, AA section (Dragon)
  - Mortar platoon: 107 mm
  - AA platoon: TOW
  - Scout platoon: Foot mobile
  - Limited CSS

- Combat Aviation Brigade
  - 2 combat aviation companies: Blackhawk helicopter
  - Reconnaissance squadron: OH-58
  - Assault helicopter battalion: Cobra

- DIVARTY
  - 3 FA battalions: 105 mm (towed)
  - Battery: 3x6 (rather than AOE 3x8)
  - No GS artillery

ARMY OF EXCELLENCE (LIGHT DIVISION): ORGANIZATIONAL FEATURES (continued)

- Engineers
  - SEE, ACE
  - 3 companies: Sapper
- ADA Battalion
  - Meager, no FAAR (ultimately)
  - 2 companies: Vulcan and Stingers
- CSS (started meager)
  - 1 medical battalion: 2 medical companies
  - Maintenance battalion: HQ/light maintenance company, main support company, and component replacement rather than component repair
  - Supply and transportation battalion: Motor transport company, 3 forward supply companies, modest number of 5-tons and substantial number of HMMWVs

ARMY OF EXCELLENCE (HEAVY DIVISION): CONCEPTUAL FEATURES[9]

- Reduce inherent robustness and redundancy while maintaining division's capability to conduct AirLand Battle
- Determine feasibility of moving systems and functions (such as ADA, MI, 8" artillery, MLRS, target acquisition, and aviation) to corps
- Increase tooth-to-tail ratio
- Consider applicability of concepts developed for LID to heavy division
- Maintain 10 maneuver battalions in division design
- Equipment (except airframes) to be available for fielding by 1987

[9]From Hassel, *Army of Excellence Final Report, Volume III, The Heavy Division*, 1 Oct 1984.

ARMY OF EXCELLENCE (HEAVY DIVISION): ORGANIZATIONAL FEATURES[10]

- Reduced size of infantry squad to 9 (from 10)
- Moved 8" howitzers to corps
- Reduced 155 howitzer crew to 9 (from 11)
- Moved Chaparral to corps
- Moved 1 of 2 attack helicopter battalions from air attack brigade to corps aviation
- Deleted brigade scout platoon

[10]From Romjue, 1993 (op. cit).

ARMY OF EXCELLENCE (HEAVY DIVISION): ORGANIZATIONAL FEATURES (continue)

- Replaced FSB with forward area support concept (FSB later reintroduced)
- Deleted sound and flash platoon
- Eliminated AG company
- Adopted field feeding concept
- Consolidated band, strength accounting, replacement operations, and casualty reporting under division G1

DOCUMENTS RELATED TO ARMY OF EXCELLENCE INITIATIVE

Introduction

The Army of Excellence (AOE) documents are organized in chronological order within the following subdivisions:

- Overall
- Light Infantry Division
  - Concept
  - Evolution of Structure
- Heavy Division

Two historical reviews give an exceptional overview of the AOE process: Romjue (Overall, 1993) provides an excellent context for AOE and describes in detail the major events in the evolution of the structure; Hawkins (included in the Future Initiatives section, 1993) gives a succinct overview of AOE and derives principles for other studies. Other recommended documents and major divisions of the references are shown below:

- Throughout the implementation, the light and heavy designs were monitored by regular force design up-dates (FDU) to the Chief of Staff, Army. The slides and memoranda for record from those FDU give a view of the detailed attention that accompanied decisions for the heavy and light designs.

- Hassel (Light: Evolution, 1984) and Hassel and Dickman (Heavy, 1984) explain the rationale for decisions related to AOE divisions.

- There was a continuing concern that the light division concept was being corrupted over time by adjustments to the structure. Message traffic and briefings associated with that concern are included (see Light: Concept, 1990 -1991).

- Several examples of the controversies related to the light division are included. The article by "Damon and Krisler" (Light: Concept, May 85) is frequently cited.

Documents

AOE - Overall

♦ U.S. Army. *The Army of Excellence*, Field Circular 100-1. U.S. Army Combined Arms Combat Development Activity: Fort Leavenworth, KS, 1 September 84.

Reviews the AOE from the perspective of the force design effort for the Light Infantry Division, revised Heavy Division, Corps, and Echelons above Corps organizations. Especially valuable discussion of process to develop AOE.

♦ U.S. Army, CACDA. DF, Subject: Results of CSA briefing 9 Oct 86, Fort Leavenworth, KS: U.S. Army CACDA, 14 October 86.

Slides and summary of decisions:

- Approved placing a stinger crewman on an SP vulcan. (Interim solution to fill void in ADA coverage).
- Disapproved addition of a fifth man to the crew of the 4.2 mortar.
- Primary mission of the Combat Aviation Brigade (CAB) is to tailor aviation in support of ground maneuver.
- Disapproved Forward Support Battalion (FSB) for the CAB.
- Disapproved command and control HQ for the two separate aviation companies in the CAB of heavy divisions (affordability and need).
- Disapproved fire support section for the corps CAB. (Concurred with retention of division CAB fire support sections.)
- Disapproved placing tanks in heavy division cavalry squadrons. Also disapproved adding one ground troop. (Affordability and mission -- task organized maneuver battalions can fulfill guard and economy of force roles.)
- Disapproved taking the cavalry squadron out of the CAB. (Div Cdr assigns mission to the cavalry regardless of where it is located.)
- Long Range Surveillance Units (LRSU) will remain in the MI battalion vice the cavalry squadron. (LRSU purpose was to develop HUMINT capability of the MI battalion.
- Disapproved addition of a mortar in the cavalry troops of the Armored Cavalry Regiment (affordability).
- Rigger company to remain in the 82nd Airborne Division (vice corps).

♦ U.S. Army. DF, Subject: AOE Update, Fort Leavenworth, KS: U.S. Army Combined Arms Combat Developments Activity, 6 May 87.

Slides and summary of 4 May 87 CSA briefing:

- CSA questioned growth of Civil Affairs. Deferred decision on CA designs and structure.

- Approved creation of Assault Battalions in LID. TRADOC to ensure adequacy of maintenance positions (specifically aircraft technical inspectors).

- Approved increase of LRS team in 82nd Abn Div from 4 to 6.

- Approved addition of 15 interrogators to LID. Strength: 10,778 personnel, 516 sorties.

♦ U.S. Army, CACDA. DF, Subject: MFR CSA AOE Update Brief -- Decision Brief, 15 December 87.-

Slides and decisions of 11 December 87 CSA briefing:

- Air Assault
  - Approved moving one CH 47 Battalion from XVIII Corps to Air Assault Division, exchanging 117 5-tons for a lighter/air transportable vehicle (2-1/2 ton and HMMWV), restructuring signal battalion from a three to a four company structure (as in LID).
  - Deferred adding one UH-60 Battalion and changing 40 helicopters in the 82nd AB Div to multi-purpose light helicopters.

- Rear Area Operation Centers
  - Approved planning cells for division, corps, theater army and area support groups. (Programmed for FY 90, deferred resourcing to DCSOPS.)

- Theater Defense Brigade
  - Approved CS/CSS packages to maintain/sustain theater defense forces for TAA. Deferred for Berlin.

- Heavy Division Aviation
  - Deferred combining assets of the Assault Aviation and Command Aviation companies to form a battalion with four subordinate companies. (Would have standardized aviation brigade structure in heavy division with all other aviation forces.)

- Air Defense
  - Approved forming an ADA battalion with four batteries in heavy divisions. Moves one firing battery in 1st Cav, 5th Inf, and 24th Inf to the reserve component. (Saves 35 AC spaces but requires increasing the RC by about 500 spaces.)

♦ U.S. Army, CACDA. Information Paper, Subject: AOE Briefing to CSA, 10 June 88.

Slides and summary of discussions during 8 June 87 CSA briefing:

- Approved keeping Long Range Surveillance Detachment in MI battalion.
- Deferred adding a UH-60 battalion for 101st and heavy division aviation battalion, pending Functional Area Assessment.
- Approved redesign of corps HHC.
- Approved increase of division COLTS from 3 to 18.
- Approved survey Planning and Coordination element in corps artillery and FA brigade HHBs.
- Approved standardizing Tank/Mech Infantry Battalion HHC: command/S-3 sections, 1 PLL clerk per company, 5 personnel in commo platoon, mess sections at 13 cooks and 3 MKTs (feed 900), and provide HEMTTs to mech battalion.
- Extensive discussion of design options for National Guard Infantry Division. Decision not clear.
- Deferred decision on 9ID redesign pending clear articulation of the warfighting concept of the division.

♦ U.S. Army, CACDA. Information Paper, Subject: Fall 88 AOE Update to CSA, 9 November 88.

Briefing slides for 9 November 88 briefing. Decisions not included, issues were:

- Engineer equipment for the 101st
- ADA brigade redesign
- SOUTHCOM force structure
- Cavalry/Scout organizations
- HEMTTs in cavalry squadron
- "Fix the companies": company drivers, bn spt plt drivers, MOS conversions, bn staff increase, company CP, and location of FIST Chief.

♦ U.S. Army. Message from DA WASHDC to CDRUSACAC, Subject: Spring 89 Army of Excellence (AOE) Update Briefing, 31 July 89.

Slides and decisions during 10 July 89 CSA briefing:

- Approved conversion of MOS 88M/77F to combat MOS.
- Approved validation evaluation of aviation support battalions in USAREUR.
- Approved one Aerial Fire Support Officer per OH-58D in corps artillery HHS.

♦ U.S. Army, CACDA. Memorandum for Record, Subject: Fall AOE Briefing to Chief of Staff of the Army, 27 December 1989.

Slides and decisions during 21 December 89 CSA briefing:

- Approved redesign concept for AR/MX battalion scout platoon using a 10 HMMWV organization. No increase in personnel, approximately 1,340 more HMMWVs (reduction of about 800 CFVs).
- Approved conversion of low-density MOS.
- Deferred decision on executive officer as 2IC in cavalry troop. (Much frustration from senior leadership that issue is still around.)

♦ U.S. Army. Message from DA WASHDC to CDRUSACAC (Info), Subject: Spring 90 Army of Excellence (AOE) Update Briefing, September 90.

Slides and decisions during 29 August 90 CSA briefing:

- Company/Troop XO 2IC: Resource AR/MX companies and cavalry troops to implement.
- Deferred decision on company FSO transportation/communication. Support collocating FSO with company/troop commander. Concerned about technology, availability of radio, overload of vehicle.
- Disapproved authorization of two 2-man sniper teams per infantry battalion. (Personnel increase -- 776 -- too high for any problems.)
- Approved redesign of LID DISCOM from functional battalion design to FSB/MSB design. (Supported by observation of CONOPS capability of recent 7ID CTC rotation.)

♦ U.S. Army, CACDA. Memorandum for Director, FDD, Subject: Fall '90 AOE Update to CSA, 6 March 91.

Read ahead memorandum, slides, CACDA decision memorandum, and DA decision message for 5 March 91 CSA briefing:

- Approved concept of two pilots for Kiowa Warrior and addition of door gunners (pending resourcing).
- Approved engineer restructure: Engineer battalion per brigade in heavy force and consolidate bridging assets at corps while reducing overall corps engineer structure. (Limited counter-mobility, even less survivability.) (Saved 1,643 spaces -- DA message).
- Deferred decision on LID enhancement: Add engineer platoon and a second ground troop to the reconnaissance squadron. Concerned about moving away from LID concept ("Don't fall into trap that you will deploy brigades instead of divisions.")
- Approved establishment of Automation Assistance Office.

♦ U.S. Army, CACDA. Memorandum for CDR, CAC, Subject: Read Ahead for 1991 Force Design Update, 4 June 92.

Read ahead memorandum and slides for 15 June 92 CSA briefing:

- Recommended review of LID design: Eliminate 155-mm GS Artillery Battery, add spaces to DISCOM, and reorganize ADA battalion to three batteries. (Slides include excellent overview of evolution of LID.)
- Recommended continuing with current Bradley Battalion: Retain current mechanized infantry platoon, HHC, and ITV company designs. Retain Echo company in all MX battalions.
- Recommended approval of 101st AASLT enhancement (Slim Eagle): Unit distribution logistics, pure wheeled vehicle fleets, increase reliance on trailers and containers, elimination of redundant capabilities, and integration of air/ground movement capabilities.
- Recommended designating Assistant Operations NCOs at corps and division as Maneuver Control System NCOs.

♦ Romjue, J. L. *The Army of Excellence: The development of the 1980s Army.* Fort Monroe, VA: Office of the Command Historian, U.S. Army Training and Doctrine Command, 1993.

Covers all aspects of the Army of Excellence from 1983-1992 including: Light Infantry Division, Airborne and Air Assault Divisions, Heavy Divisions, Corps and Echelons Above Corps, and Special Operations Forces. Gives particular attention to conceptual foundations of the new light infantry division and controversies associated with it. Document includes extensive (69) organizational charts of notional and actual designs.

AOE - Light Infantry Division: Concept

♦ Luttwak, E. N. *An historical analysis and projection for Army 2000, Part two: Analysis and conclusions* (Draft Final Report). Chevy Chase, MD: Edward N. Luttwak, Inc., May 15, 1983.

Defines the functions, roles, orientation, and structure of non-mechanized formations to implement the evolving doctrine, paying particular attention to distinctions among tactical, operational, and theater-specific roles. Outlines the manning, training, equipment, and leadership requirements for tactical versatility in a context-adaptable force. Describes the appropriate operational methods for the light infantry force. Finally, proposes unit structures and equipment for squad, platoon, company, battalion, and echelons above battalion.

♦ U.S. Army. *Operational concept, the light infantry division.* Fort Leavenworth, KS: U.S. Army Combined Arms Combat Developments Activity, Concepts Development Directorate, 15 March 1984.

Presents limitations and operational concept for division overall and by functional area.

- Division focusses on capabilities to defeat light enemy forces in a low-intensity conflict, while retaining utility for employment in other scenarios.

- Concept:
  - Organized for rapid deployment, immediate combat operations, and quick retrieval.

  - Contingency operations from show-of-force or peacekeeping operations to full combat operations against a hostile force.

  - Enabled to reinforce rapidly at mid- to high-intensity levels; requires augmentation.

  - Operates as part of corps or joint task force.

  - Deployment into hostile area requires local air superiority and possibly naval support.

- Organized to provide interface for rapid integration of augmentation forces.

♦ Wickham, J. A. *White paper, light infantry divisions.* 16 April 84.

Chief of Staff's concept for the Light Infantry Division. Addresses need, characteristics, formation, manning, training, equipping, and sustaining.

♦ Gordon, M. R. The Charge of the Light Infantry -- Army Plans Forces for Third World Conflicts, *National Journal.* 19 May 1984 (23), pp. 968-972.

Detailed article on light infantry initiative. Gives extensive coverage to controversies.

♦ Moore, J. E. [MG (P)]. Interview by Joe D. Huddleston, I Corps and Fort Lewis, 27 November 1984.

Interview of Commander, 7th Infantry Division (Light) at the time of its transition to be the first light infantry division. Describes benefits of participating in the design and process for handling the transition to a light force.

♦ Damon, S. (MG) and Krisler, B. (BG) [pseudonyms], "Army of Excellence"? A Time To Take Stock, *Armed Forces Journal International.* May 1985, pp. 86-94.

Questions the appropriateness of the light division for the strategic situation, and criticizes the creation of additional divisions in a period of constrained resources.

♦ Bahnsen, J. C. (BG) The Kaleidoscopic U.S. Army, *Armed Forces Journal International.* November 1985, pp 78-88.

Criticizes AOE in general for excessive complexity and LID in particular for lack of capability in mid to high-intensity environments. Proposes standardizing heavy division (with tanks to all cavalry squadrons), restructuring division as an operational HQ without logistics, and forming combined arms battalions.

♦ U.S. Army. *Speaking with One Voice - Light infantry division initiative.* 26 Feb 88.

Public affairs article that updates White Paper, and summarizes status of light divisions and round outs.

Wass de Czege, H. *Employment concepts for light infantry in Europe* (Interim Report). Fort Leavenworth Kansas: CAC, 26 August 1988.

Influential study by the author of FM 100-5. Began by looking at strategic questions: 13 CENTAG scenarios for employing light infantry divisions in Europe. Primary conclusions (from Executive Summary):

- Light infantry should not be viewed as a substitute for heavy forces.
- Proper early employment of LID can free a heavy division to be used for heavy missions.
- Far more utility from having LID in place before hostilities than from late arrival.
- Operational effects are: (a) keeps mobile formations from being fixed; (b) shapes and restricts flow of enemy forces; (c) slows enemy operations; (d) forces enemy to dismount; (e) forces enemy airborne/air assault to be used in forward sector vice rear areas.

Includes three annexes:

- Guide for corps and division planners in employment of light infantry in Europe.
- Article by Brigadier Simpkin on use of light infantry in Europe from strategic, operational, and tactical perspectives.
- Detailed discussion of augmentation recommendations.

♦ U.S. Army, CACDA. Briefing: LID Concept Review, undated (ca mid 90).

Contrasts 1984 design, 1987 (post-certification) design, "current" design, and envisioned design. Considers organization, threat, domestic environment, doctrine, training, materiel, and leadership. Presents three options:

- Robust for versatility and lethality -- contingency orientation, decentralize for brigade packaging, reduce infantry.
- Middle ground -- LIC orientation with higher utility, deploy in division or brigade, enhance mobility and firepower.
- Return to original concept -- train for LIC, strip out excess assets and replace with mobility (e.g., utility helicopters), accept requirement for lengthy training and robust augmentation, delete from USAREUR and CENTCOM TIPFDC.

♦ Richardson, W. R. The Origins of the Joint Readiness Training Center, 1983-1986, Interview by Dr. Rodler F. Morris, Fort Leavenworth, 15 February 91.

Includes analysis of "failure" of LID due largely to political concessions for congressional approval (e.g., light division for Alaska). Discusses evolution of recognizing the potential of light forces across the conflict spectrum.

♦ U.S. Army, CACDA, Message from CDRUSACAC to Distribution, Subject: Light Infantry Division Concept Review, March 91.

CACDA sought comments on the suitability of the original LID concept and recommendations/considerations for current and future design. Document folder includes responses from:

- 10th Mountain Division (LI) -- Endorses concept and tenets in the White Paper; emphasizes contributions of CTCs, especially in providing training with slice.

- USARPAC -- Recommends: Concerted effort to ensure brigade can receive the requisite support whether employed individually or as part of a larger force; capitalizing on modernization, e.g., OH-58D, SINCGARS, and LCCP; pursuit of fielding of systems such as light helicopter, AAWS-M, and armored gun system.

- USAREUR -- Constraints do not meet requirements of Europe (need augmentation above sortie limit for deployment later in sequence); need anti-armor capability; primary LID mission in Europe is brigade or battalion size fixing forces.

- FORSCOM (Burba) -- Best force for combat operations in restrictive terrain (specialized personnel and austere TO&E give leverage to fight in decentralized manner); original constraints reinforce strategic mobility; must resist temptation to heavy up the organization.

- Infantry School (Cavezza) -- Balance between rapid deployability and combat capability is still valid; recommends materiel improvements to overcome lethality and survivability issues.

- 7th Infantry Division (L) (White) -- Constraint on personnel and sorties is unrealistic; brigade packages are relevant but need division level organization for C2, CS, and CSS augmentation; personnel system has not supported the manning of leadership positions; few high-technology systems have been introduced in the LID.

- 25th Infantry Division (L) -- Need to be able to deploy brigade task forces; Army has not distributed light weapon technology that was envisioned in the White Paper.

♦ U.S. Army, CACDA, Briefing, LID Concept Review: Evolution of Change, undated (ca 91).

Concise overview of organization changes, by year from 1983 to 1991. Includes cost (in personnel), source of request for the change, and judgment of whether the change was consistent with the LID concept.

AOE - Light Division: Evolution of Structure

♦ Hassel, T. B. (CPT). *Army of excellence final report, Volume II, The Light Infantry Division*. Fort Leavenworth, KS: U.S. Army Combined Arms Combat Development Activity (CACDA) Force Design Directorate, 29 June 1984.

Report documents decisions under the Army of Excellence (AOE) study related to the Light Infantry Division. The decisions relate to the August 1983-May 1984 timeframe. Guidance from CSA was for division to: (a) contain about 10,000 soldiers; (b) have 9 maneuver battalions; (c) be deployable in 400-500 aircraft sorties; and (d) be about 50% infantry.

Report also describes a potential methodology for standardizing other light forces (Airborne and Air Assault) based on the light division as a point of departure. The report is organized generally around BOS, with very useful summaries of the design evolution that led to the TOE as of June 1984.

♦ U.S. Army, CACDA. Memorandum from COL Wollenberg for MG McNair and BG Hammond, Subject: Status of AOE TOE, 11 July 1984.

Summarizes impact of changes requested by HQDA, especially removal of TACCS. (CAC did not add personnel as requested.) Also gives status of medical module concept, field feeding concept, and review of battalion level Personnel Administration Center.

♦ U.S. Army, CACDA. Fact Sheet, History of Increase in Strength and Sorties Profile of the LID, 13 November 84.

Summarizes changes in structure from CSA approval (21 Oct 83) through November 84. Documents impact on strength and sorties of each change.

♦ U.S. Army, CACDA. DF, Subject: Strength of Light Infantry Division, from FDD (Covault) to Cdr, 29 November 84.

Documents early increase to strength requirements of LID due to the addition of 60-mm mortar crews to the rifle companies (162 spaces).

♦ U.S. Army, CACDA. Briefing, Certification, undated (ca 87).

Summarizes certification of light infantry division.

- Concept was found to be operationally sufficient.
- Design was found to essentially sound, with specific design changes.

♦ Wickham, J. A. Interview by Dr. Richard Waytak, Fort Ord, CA, 15 April 87.

The Chief of Staff of the Army answers five questions related to certification process for LID. Considers the certification to have met the needs of the Army very well, and warrants application in future design efforts.

♦ U.S. Army, CACDA. Briefing: Light Infantry Division, Heavy/Light Assessment, General Officer Steering Committee, February 21-22 89.

Committee addressed heavy/light integration and LID assessment. Briefing includes 15 issues: LNO, LID employment, FASCO vs. MSB/FSB, medical support, technology, MSE, ADA, reconnaissance, LIC, 155 battery, corps augmentation, MP platoon, engineer company, LID forum, and sortie/personnel caps. Briefing emphasizes CACDA perspective of modifying original design criteria to enhance flexibility for bn-bde operations across an escalating spectrum.

♦ U.S. Army, CACDA. Briefing: Future Light Forces, undated (ca 89).

Addresses problem of how to enhance light forces employment capabilities in the short term as part of the transition to AirLand Battle -- Future light forces. Includes units not always needed (ADA battalion, engineer battalion, GS artillery, and NLOS at battalion) and enhancements considered and discarded (truck company, MLRS battery, Apache Attack helicopter battalion, robust -- 11 man -- infantry squad, and robust infantry battalion).

♦ U.S. Army, CACDA. Briefing: Light Forces Master Plan, undated (ca Sep 89).

Refinement of briefing cited above.

♦ U.S. Army, CACDA. Briefing: Light Infantry Division Modernization Plan, undated (ca 89).

Presents assumptions and constraints for LID enhancement efforts. Includes list of 73 potential enhancements in CACDA priority. Proposes firepower and mobility

modifications for '92, '94, '96, and beyond '96. Each modification includes people changes, number of C-141 sorties, and justification.

- U.S. Army, CACDA-CFD. Information Paper, Subject: LID Assessment: Field Input, 5 Jan 89.

Summarizes input from MACOMs and proponents concerning what LID should do and recommended organization changes. Focus was on mid-high intensity conflicts.

- U.S. Army, CACDA. Briefing, Light Infantry Division White Paper, undated (ca 89).

Presents base case and five options with RISC (Rapid Initial Strategic Capabilities) packages. Recommends option optimized for anti-armor, heavy fire support.

AOE - Heavy Division

Hassell, T (MAJ) and Dickman, D. (CPT). *Army of Excellence final report, Volume III, The heavy division*. Fort Leavenworth, KS: U.S. Army CACDA, Force Design Directorate, 1984.

Describes the process and results of force design related to the AOE heavy division. Presents results in the context of modifications to Division 86 designs. The first chapter outlines initial guidance and methodology. Remaining chapters describe changes by functional area. Each functional area chapter includes a description of the concept for the area and a summary of the evolution of the organizational structures as of the date of publication.

- U.S. Army, CACDA. Message, AOE Design of the Infantry Division (ID), 14 January 85.

Announces design guidance, milestones and AOWS administrative instructions.

- U.S. Army, CAC. Concept Statement for the U.S. Army's Infantry Division, 8 Feb 85.

- U.S. Army, CAC. Fact Sheet for CAC Cdr, Subject: AOE Design of the ID, 18 Mar 85.

Concise statements of the concept, organizational diagram, and DA design guidance for the Infantry Division.

- U.S. Army, CAC, Infantry Division IPR (for CAC Commander), 20 Mar 85.

Major purpose was to decide the mix of battalions for the Infantry Division in a NATO environment: 6-2-2 vs. 7-2-1. Recommends 6-2-2. Also reviews concept statement, proposed design, and letter of introduction.

- U.S. Army. Memorandum for Record, Subject: Infantry Division Briefing to State's Adjutants General ID Commanders and Staffs, May 1985.

Summarizes issues raised related to Infantry Division concept and organization; e.g., convert to MSE in AC and RC at same time so RC can communicate with AC Corps.

- U.S. Army, CACDA. Message, CDR USACAC to COMDT USAEC, Subject: AOE Inf Div (ID) Redesign Requirements, 8 May 85.

Asks Engineer Center to revise the engineer battalion in light of persistent disagreements: (a) Engineer battalion perceived as too big, especially HHC; and (b) questions about the need for the GS Company.

- U.S. Army, CACDA. Briefing, Infantry Division Redesign, IPR for LTG RisCassi, 11 July 85.

Briefing up-dates status of the Infantry Division design with reference to DA design guidance, the operational concept, and combat capabilities. Includes a comparison of the Infantry Division with Light Infantry, Airborne, Air Assault, Motorized, Mechanized Infantry, and Armor Divisions. Characteristics compared are dismounted strength, direct combat strength, anti-armor systems, and indirect fire systems.

APPENDIX H

FUTURE INITIATIVES: OVERALL TRENDS AND RECOMMENDATIONS

FUTURE INITIATIVES:
OVERALL TRENDS AND RECOMMENDATIONS

Study Methodology

- Designs that include participatory study group are most likely to be implemented.

DRS AOE Division 86

Low Participation High Participation

- Continue task force structure for participation of proponents.
- Involve best conceptual thinkers (not necessarily best commanders).
- Develop cells of conceptual thinkers to filter ideas (avoid patterns of compromise to maintain consensus).

OVERALL TRENDS AND RECOMMENDATIONS

Study Methodology (continued)

- Fiscal constraints and personnel strength drive restructuring initiatives. (Hawkins)

  - Set high and low bands of capabilities to restructure planners rather than absolute limitations.
  - Allow flexibility to breech limits if justified.

- Length of study period affects quality and acceptance of design

  - Too short: Lacks analysis
  - Too long: Dissipates conceptual and imaginative energy
    Loses influence of key commanders
    Becomes bureaucratic

  - Recom: One year from concept to design decision; two years maximum to execute decision

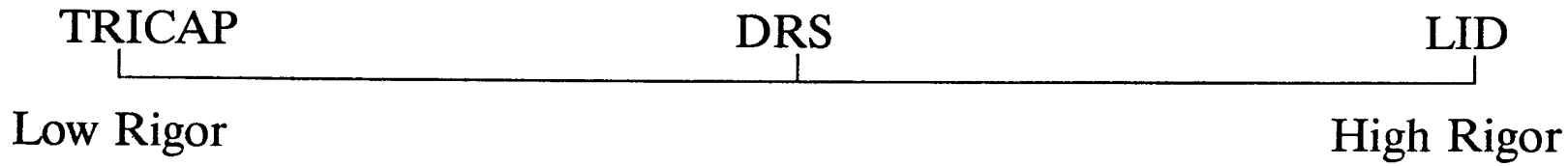
Study Methodology (continued)

- Up-front participation by TOE/TDA Army in restructuring formulations works best.

  - Allow to go to field before all details established (part of one-year development cycle).
  - Validate concepts in the field before full transition.

- Review progress with decision briefs (GOW builds consensus, but rarely facilitates decision).

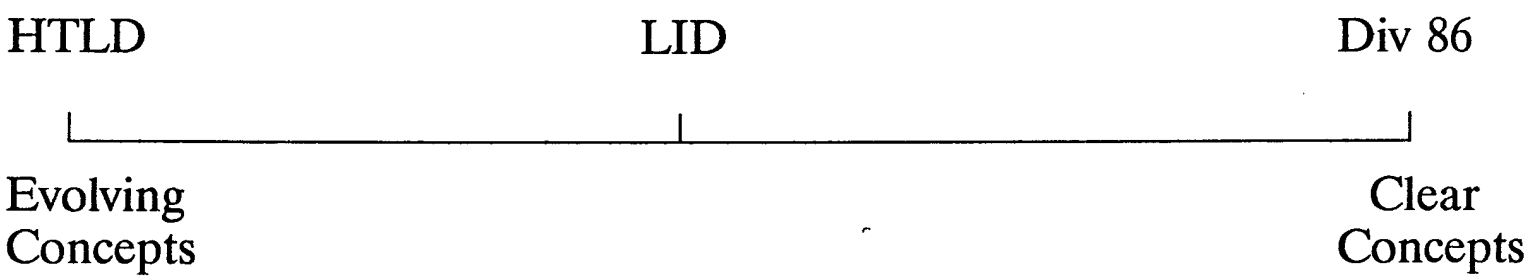
- Rigorous testing is vital to assure quality and enhance acceptance.



  - Involve proponents to insure tactics and METT-T are appropriate.
  - Include analytical experts (e.g., Div 86 Analysis Group) to build rigor into planning of the validation.
  - Enforce rigor in execution: Limit number of variables, resource properly, train OPFOR, and train concept (experimental) unit.
  - Instrumentation of performance is essential.

Design Trends

- Mixtures of standardized divisions work best. (Corollary: Specialty divisions rarely survive.) (Hawkins, 1983)
- Restructuring initiatives based on future weapons do not survive. (Hawkins, 1993)
- Restructuring based on programmed technological and METT-T changes is imperative.
- Organizational designs that follow conceptual thought work best.



Design Trends

- Personality drives restructuring efforts. (Hawkins, 1993)

  - Increases criticality of concept: Credible enough for implementation to continue beyond key driver's term.
  - Increases need for fairly quick decision.

- Comparative analysis for trade-offs among proponents tends to reflect decision maker's personal biases.

  - (Short term) Use current trade-off models to frame issues for more informed deliberations and decisions.
  - (Long term) Develop a high resolution combat developments simulation to perform comparative analyses.

Persistent Issues

- Placement of systems:

Pool	Habitual
Increase flexibility Reduce cost	Increase team work and freedom of action Assure timely availability

- Degree of self-sufficiency:

Decentralized Assets	Centralized Assets
Increase flexibility Increase aggressiveness Decrease deployability	Increase strategic/ operational mobility Increase efficiency

Persistent Issues

- Redundancy of logistics tail:

Dedicated Logistics	Area Logistics
Increase sustainment Decrease agility Increase personnel and dollar costs	Increase strategic/ operational mobility Decrease personnel and dollar costs

  - Consider host nation, contract, and Reserve support.

- Innovativeness of design:

Innovative	Continuity
Appear progressive to preserve funding Justify effort and resources devoted	Preserve capability during transition Capitalize on current expertise Less destabilizing

DOCUMENTS RELATED TO FUTURE DESIGN INITIATIVES

Introduction

The documents in this section propose options to be considered in future initiatives or describe principles that cut across initiatives. The history by Hawkins (1993) is especially recommended, Documents are in chronological order.

Documents

♦ Harned, G. M. (MAJ). *The principles of tactical organization and their impact on force design in the U.S. Army*. School of Advanced Military Studies, Fort Leavenworth, KS: U.S. Army Command and General Staff College, 2 December 1985.

Paper extracts principles from work by E. S. Johnston (1936). Focusses on unity of action and economy of force. Finds post-Vietnam efforts to be too dependent on senior officer personality and deficient for misinterpreting or ignoring unity of action and economy of force.

♦ National Defense University. Briefing: Maneuver Oriented Corps -- 1996 (MOC-96), 25 July 1986.

Text and slides for a year-long research effort by a group of senior students. Proposal realigns divisions and brigades: divisions become units of concentration (rather than maneuver), commanding two to five autonomous "regimental combat teams." Regardless of merits of overall corps structure, the analysis of the elements of the corps is impressive.

♦ U.S. Army, CAC. Briefing: AirLand Battle -- Future, undated, (ca August 1989).

Slides describe threat, requirements/capabilities in MOSW, and requirements/ capabilities in war for eight environments: North America, Space, Europe, Pacific, Middle East/Southwest Asia, Latin America, Atlantic, and Africa.

♦ U.S. Army, CAC. Briefing: Light Infantry Division Light Force Assessment, Responding to Contingencies, undated, (ca August 1989).

Slides cover guidance, characteristics, and the spectrum of capabilities in contingency operations.

♦ U.S. Army, CAC. Briefing: AirLand Battle -- Future (Heavy), Light Infantry, undated, (ca August 1989).

Slides describe light infantry missions (augmented and unaugmented), the projected role under assumptions of the Soviet threat, and the projected role with a third world threat.

♦ U.S. Army. *Cadre Division Analysis, Volume I, Executive Summary*. Fort Leavenworth, KS: United States Army Combined Arms Command, 15 June 1992.

HQDA directed TRADOC to develop several cadre division models based on the AOE heavy division and evaluate using following criteria: deployable 12 to 15 months after mobilization, cost effective, and meet other requirements with acceptable risk. Recommended option was:

- Option designed to conduct selected basic combat training and advanced individual training, to be self sufficient, and to have limited command field exercise capability (strength = 5,798).
- To be located in active component.
- To be collocated with a full-up division.
- Not to conduct initial equipment training.

♦ U.S. Army, USAREUR. Briefing, Restructuring the Corps and Division, undated (ca February 1993).

Proposes regimental structure for corps with the rationale of keeping pace with technology. Proposes balanced regimental combat teams that are claimed to be optimized for low to mid intensity combat but still capable at high intensity. Compares personnel and firepower of typical corps with four options: 4bn/4co; 4bn/3co; 3bn/4co; and 3bn/3co.

♦ U.S. Army, CAC. Design Criteria, Force Design Directorate, not dated (ca late 93).

Force Design Directorate surveyed 35 General Officers, 4 Colonels, and 1 civilian on topics related to design of future units. Topics were: Mission, Function by Echelon, Force Projection Capability, Resource Constraints, Size, Combined Arms Capability, Jointness, Type, Tooth to Tail, AC/RC/Civ Mix, and Army Modernization Objectives. Folder includes conclusions slide.

♦ Hawkins, G. R. *United States Army force structure and force design initiatives, 1939-1989* (Advance Copy). Washington, DC: United States Army Center of Military History, 1993.

Gives excellent overview of major force design initiatives and draws overall conclusions with implications for future design. Major initiatives are:

- Triangular Division (1919-39)
- Pentomic Army (1956)
- Modern Mobile Army 1965 (MOMAR I) (1959-60)
- Reorganization Objective Army Divisions (ROAD-65) (1961-65)
  - -Air Assault (1962-65)
  - -TRICAP (1971-74)
- Army 86 (1978-83)
  - -Division 86 (1978-83)
  - -Fixed Brigade (1978-79)
  - -Infantry Division 86 (1979-81)
  - -Corps 86 (1979-83)
  - -Echelons above Corps (1979-83)
- High Technology Light Division (HTLD) (1980-84)
- Army of Excellence (1983-)

Conclusions and Implications:

- Dominant official objective of force design has been to assure mobility and flexibility and to incorporate new weapons. Author asserts that "in reality, the pre-eminent influences ... are manpower and money" (maximize the utility of limited end-strength and secure a larger slice of budget). (p. 93)

- Success of design initiatives requires well-coordinated, widely staffed effort (e.g., DRS narrow and not implemented; AOE broad and implemented).

- Echelon for placing resources in general and new weapons in particular have been a persistent problem. Pooling resources is trend for resources, especially when budgets are constrained (e.g., AOE), and recent trends point to centralization of weapons. Author concludes that pooling resources is ineffective while centralizing weapons provides better training and control of resources.

- "In the last 35 years designers have been unable to resolve the dilemma of combat capability versus transportability." (p. 96)

- Echelon for tactical and administrative integration has steadily moved to lower levels. Projected to stay at battalion.

- Specialized divisions and universal divisions do not work.

- Divisions designed while depending on weapons and technology that are "to be developed" are unsuccessful (e.g. HTLD).

- Strong personalities have been pivotal (e.g., General Starry with Army 86 and General Wickham with AOE).